Computer Masti

LEVEL

VII



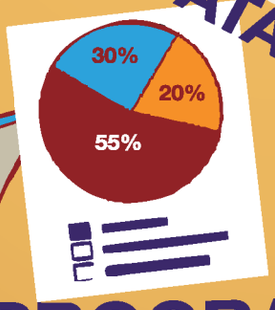
DIGITAL STORY TELLING



INTERNET







DATA ANALYSIS & PROGRAMMING

Inopen™

www.computermasti.com

adding simplicity to sense



A Collaborative Product from IIT Bombay and InOpen Technologies

Please refer to the last page or copy right and license details

Computer Masti

Level VII



Created at:
Department of Computer Science & Engineering
Indian Institute of Technology Bombay
Mumbai, India.
www.cse.iitb.ac.in

Editors
Sridhar Iyer

Authors
Vijayalakshmi Chitta
Farida Khan
Usha Viswanathan
Malati Baru

Powered by:
InOpen Technologies

Design
Sameer Sahasrabudhe
DTP
Sandeep Gaikwad
Swati Revandkar

Illustrations
Kaumudi Sahasrabudhe



About This Book

This book has evolved out of contributions from many authors, bringing together a variety of creative ideas. The salient features of this book are:

- The book is based on a detailed computer science syllabus that has been reviewed by many experts. This syllabus is available for download from *www.computermasti.com*.
- Establishing clarity of thought and developing computer fluency is the main objective of Computer Masti.
- Fun is an important element of learning.
- The lesson contents are woven around interactions between an imaginary teacher and two students. The teacher mostly asks questions that guide the students to discover and learn topics on their own.
- Each lesson focusses on specific concepts and associated skills. These concepts are selected such that: (i) They lay a strong foundation for learning computers. (ii) They contribute towards general intellectual development, and (iii) They are age appropriate.
- The Worksheets and Activities are designed in such a way that they supplement topics being covered in other subjects, to the extent possible. Group activities are included in each lesson to encourage collaborative learning. Projects are also suggested to reinforce the learning of topics across multiple lessons.
- 21st century skills of critical thinking, collaboration, communication and creativity are addressed in the lesson content and supplementary activities.
- The book meets the standards suggested for continuous and comprehensive evaluation (Right To Education).
- The lessons and activities are based on free and open source software. The Computer Masti Toolkit (in the CD) is easy to install on commonly used operating systems.
- The book includes child friendly illustrations that are sensitive to body image and gender issues.
- Each Lesson has a Teacher's Corner section, which gives a lesson plan outline, some dos and don'ts, and pointers to when each worksheet has to be given to students.
- Emphasis of healthy computer practices, including SMART rules of Internet safety, AWARE guidelines for responsible use of Internet resources are addressed in the lesson content and supplementary activities. Poster about these are available on the website. You can put these on the display boards. This would serve as quick reference and memory trigger for the students.
- The online (e-book) version is available freely for individual use, under the conditions described earlier in the Copyright Statement. You may download it from: *www.computermasti.com*.
- Comments on the book and suggestions may be sent to Sridhar Iyer (sri@iitb.ac.in).

Acknowledgements:
We are thankful to Sahana Murthy for reviewing this book and participating in discussions at various stages. We are grateful to IIT Bombay for support during the creation of this book. Last but not the least, the teachings of Sri Sri Ravishankar have been a major source of inspiration for this book.



How To Use This Book

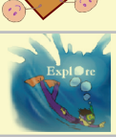
This book is meant to be used for teaching computers to children in the Seventh standard, in a way that is mostly fun (as indicated by the "Masti" in the title). It is designed so that it can be covered comfortably in one year, with one class (30 to 45 minutes) per week. A weekwise schedule of topics is given below.

Lesson No:	Topic Name	Concepts	Skills	Weeks
1	Revision of Level VI	o Brainstorming for generation of ideas o Representing information through Mind maps o Multiple ways of categorization o Multiple representation of data o Flowcharts o Programming language syntax	o Creating mind maps o Creating slides with pictures and animations o Entering and processing data in Spreadsheets o Drawing flow charts o Writing and executing syntax based BASIC programs	1st- 3rd
2	Inside Computers: Hardware and Operating systems	o CPU (Central Processing Unit) o RAM (Random Access Memory) o Secondary storage o Backup o Input/output devices o Port, Powers supply, Motherboard o BIOS (Basic Input Output System) o OS (Operating System) o Application software	o Booting the computer and exploring the system hardware and software details.	4th- 6th
3	Image Editing: Creating Collage	o Image editing o Pixels	o Cropping an image o Scaling an image o Adding text to an image o Changing resolution of an image o Printing an image	7th- 9th
4	Advanced Presentation: Digital story telling	o Planning multimedia presentation o Digital story telling	o Importing and inserting audio/ video files in slides o Viewing and using the notes page option o Printing slides	10th- 13th
5	Word Processor: Designing Ephemera	o Planning layouts o Deciding articles for inclusion	o Designing newsletters, invitations by using word processor tools o Scanning and inserting the scanned image in a document	14th - 16th
	Revision			17th
	Assessment			18th
6	Internet: Content sharing	o Email groups o File sharing o Security o Cloud Computing	o Sending group emails o Composing mails in local language o Using advanced search options in an email application o Sharing files on Internet	19th - 22nd
7	Spreadsheet: Data Analysis	o Sorting o Handling multiple representations o Interpreting data	o Sorting given data o Setting sort criteria o Using functions in spreadsheet o Drawing charts o Merging and formatting cells o Printing spreadsheets	23rd - 26th
8	History of Computers	o Chronology of Computer development	------	27th - 28th
9	Introduction to FOSS	o FOSS (Free and Open Source Software)	o Installing and exploring Xmind and Scribus applications	29th - 31st
10	BASIC Programming: Control and Repetition	o Repetition (loops) o Controlling execution of a program o Arrays	o Writing syntax based programs using repetition and control structures	32rd - 34th

Interactivity is the key to success with these lessons. In the class, ask the students questions, and let many students answer each question. Ensure that the conceptual understanding is mastered before proceeding to the skills. In the computer lab, if they are doing activities in groups, ensure that they switch "drivers" frequently, so that each student gets to do a fair amount of the activities. Use the Group Activities and Projects suggested to stimulate creativity and encourage knowledge sharing.

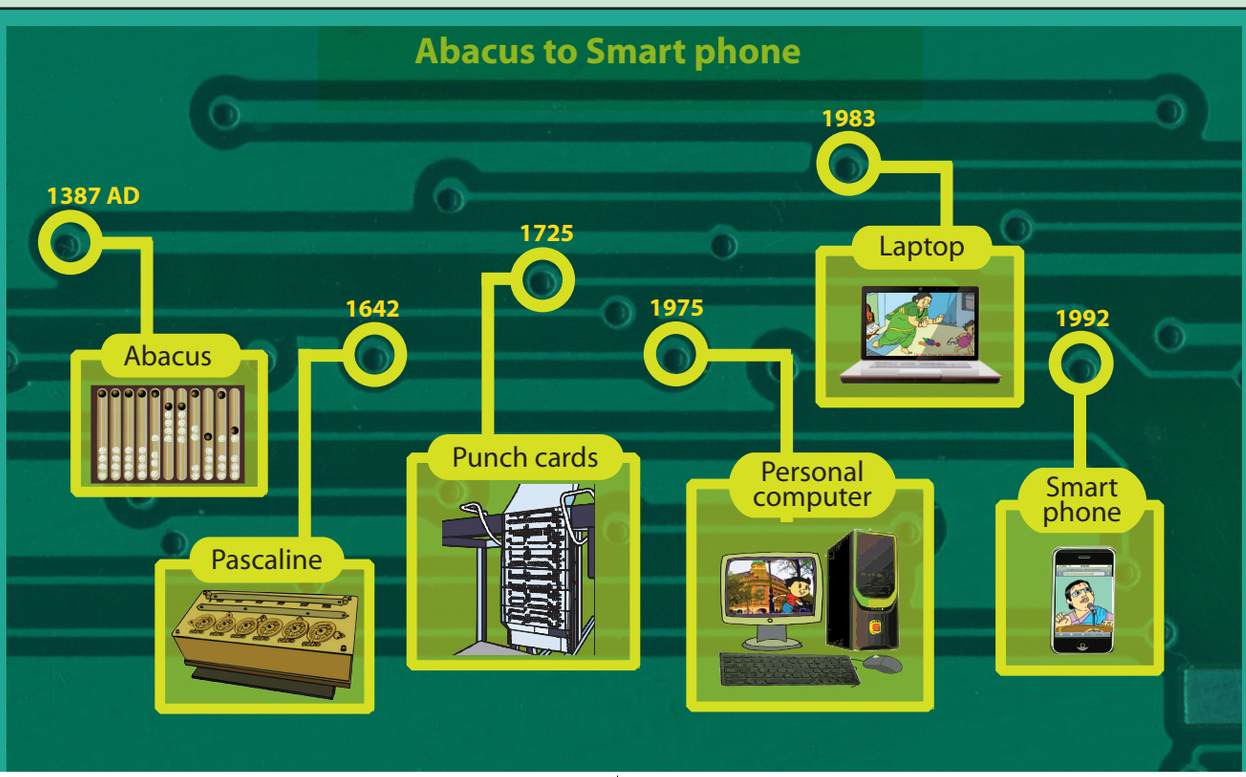


Legends used in the book

Indicator	Explanation
Aim:	Blue box with rounded corners, lists the topics covered in the lesson.
Concept	Brown and orange boxes explain the concept discussed in that section of the lesson.
Skill	Purple boxes give step by step instructions to do a task (on the computer) in the application being discussed.
Guidelines	Pink boxes are general recommendations that help to achieve a certain goal.
Info	Green boxes have information and/or additional details about a skill or concept.
Learning Outcome: At the end of this lesson, you will be able to:	Yellow notes list the expected measurable learning objective to be attained by the student after learning the topic.
Recall	This icon points to the footnote which provides, brief description of the concept learned earlier.
	Pages with this icon has Worksheets; that test extent to which learning objectives of the lesson are attained.
	Pages with this icon has Activities, which reinforces students' learning.
	This icon represents after class collaborative activities to be presented later in the class for discussion and/or review.
	This image has tasks students can do to gain additional knowledge on the topic of the lesson.
Teacher's Corner	Pages with this icon gives pointers to the teacher on how to teach the lesson.
	This icon points to a list of websites that can be referred for self learning
Black Italic text	Search Keyword, examples and Web site address.
Bold black text	New word introduction
Bold Orange text	New Technical term introduction.

Contents

1.	Revision of Level VI	2
2.	Inside Computers: Hardware and Operating Systems	7
3.	Image Editing: Creating Collage	25
4.	Advanced Presentation: Digital story telling	41
5.	Word Processor: Designing Ephemera	54
6.	Internet: Content sharing	66
7.	Spreadsheet: Data Analysis	80
8.	History of Computers: From Abacus to Smart phones	94
9.	Introduction to FOSS	106
10.	BASIC Programming: Control and Repetition	114





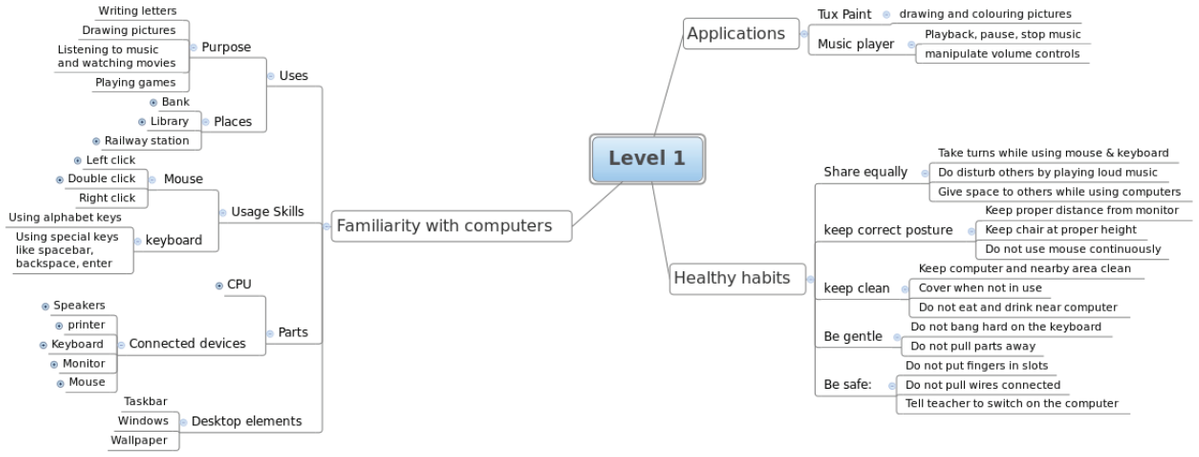
1 Revision of Level VI

Aim: In this lesson, you will learn:
- Revise the topics in Computer Masti upto level VI.

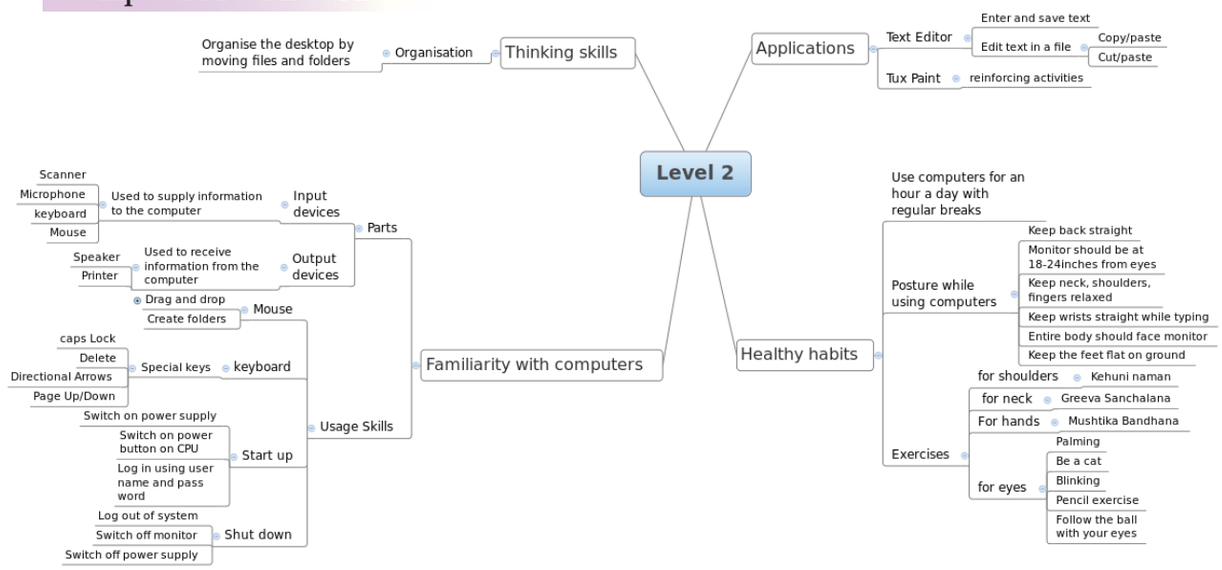
Jyoti and Tejas are recalling the different topics they have learnt in Computer Masti so far.
Jyoti: Let us refer to the mind maps given in the last pages of Book 6. These give a summary of topics that have been covered in Computer Masti.
We have topics on mainly five broad themes:

1. Familiarity with computers,
2. Thinking process skills,
3. Computer applications,
4. Programming,
5. Social/ethics and safety aspects.

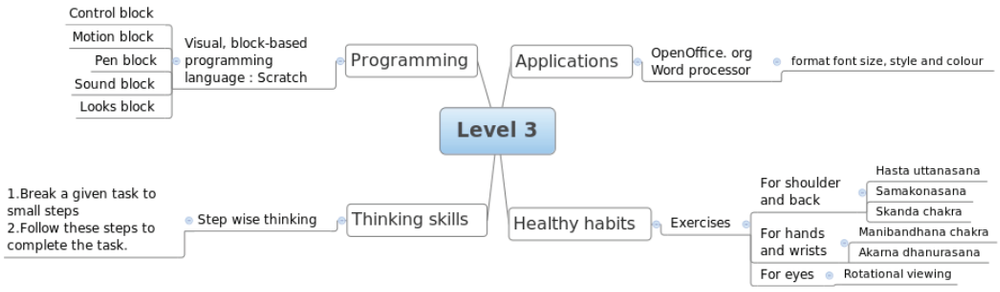
Computer Masti Level 1



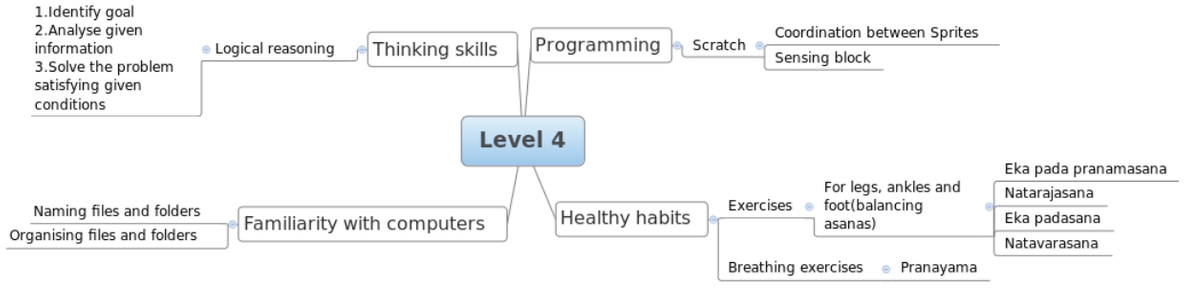
Computer Masti Level 2



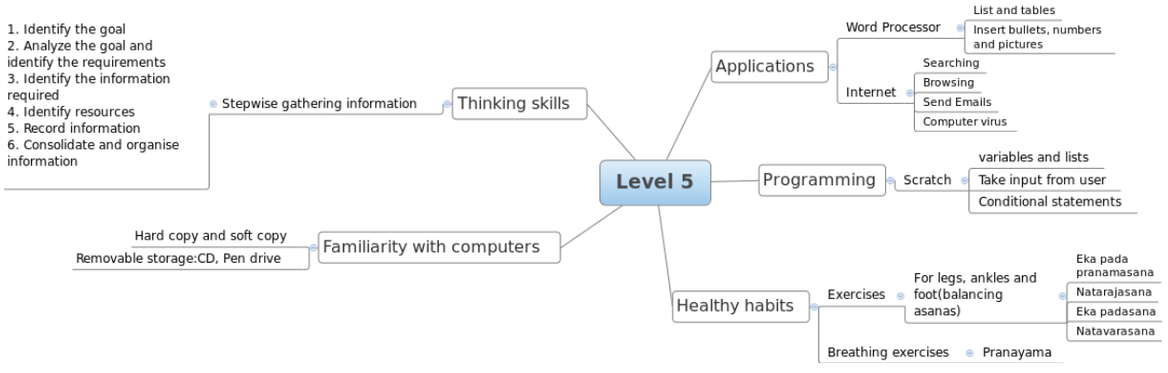
Computer Masti Level 3



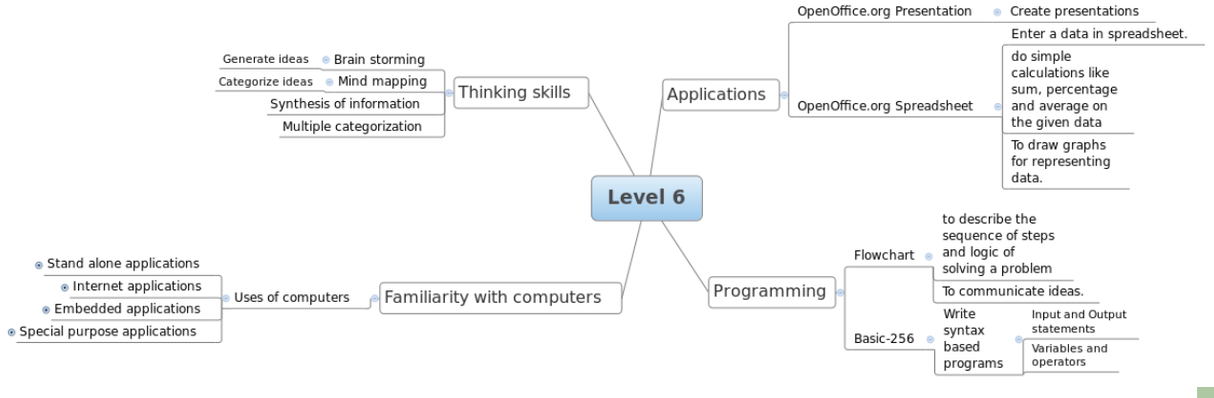
Computer Masti Level 4



Computer Masti Level 5

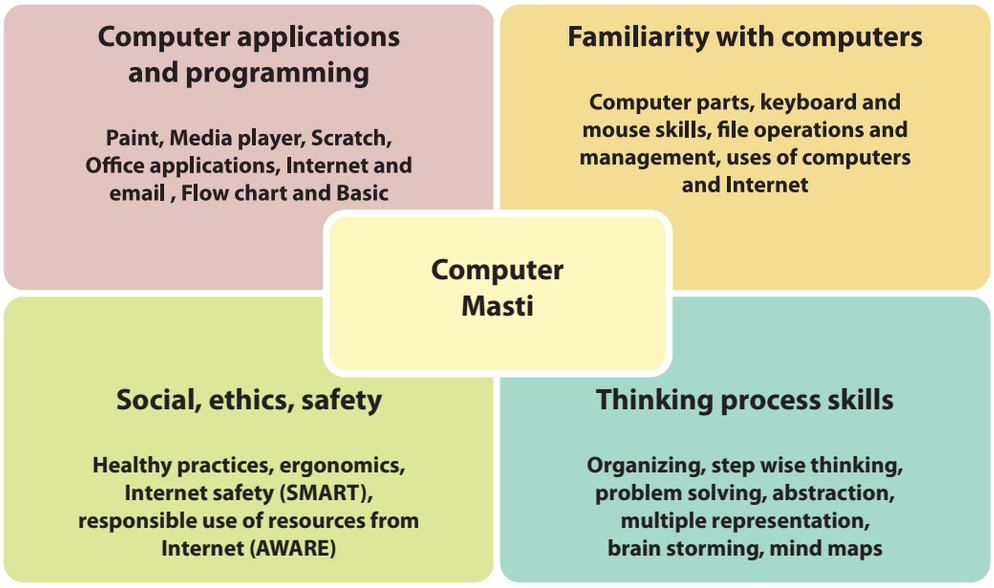


Computer Masti Level 6



Tejas: Let us represent this information using different ways. We can prepare slides, or create a table or a concept map.

Jyoti: Good idea. I will create a slide to talk about the topics we learnt so far. Here is a sample.



Tejas: I observe that you merged the category of computer applications and programming in the slide.

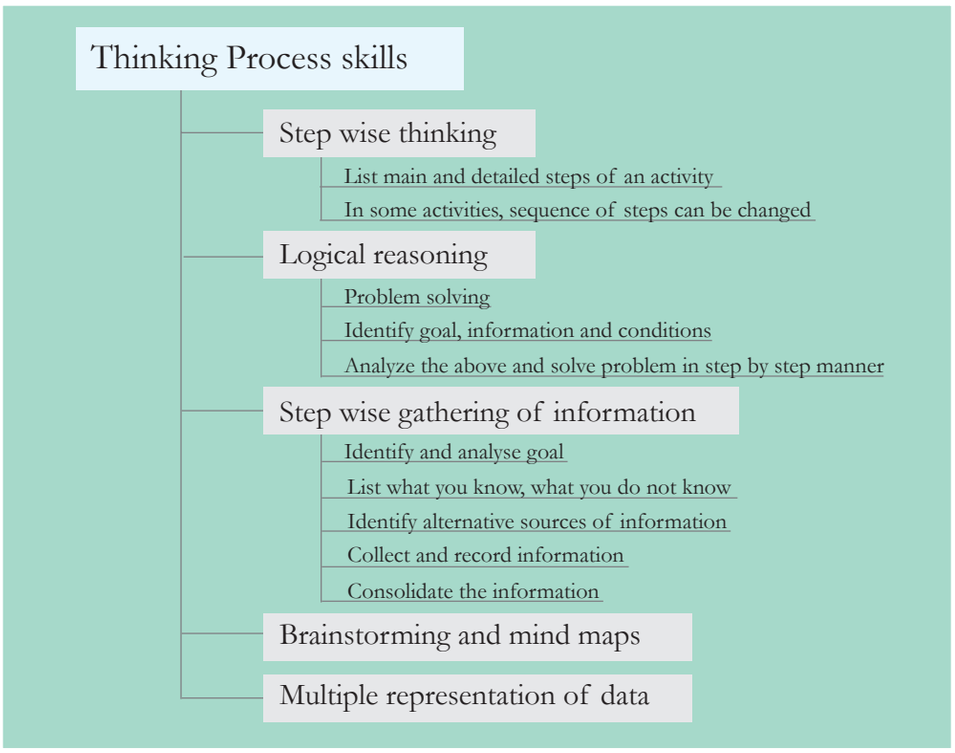
Activity: Create one slide each on each of the theme to describe the topics covered under each theme.

Tejas: I will prepare a table to synthesize information about the topics we learnt in basic familiarity, computer applications and programming.

Theme	Sub-theme
Familiarity with computers	Uses of computers
	Computer parts and their functions
	Computer operations- start up and shut down, login, log out, booting, user name and pass word
	Mouse and Keyboard Usage skills
	File management and operations
	Uses of computers
Computer Applications	Media Player
	Paint
	Text editor
	Word processor
	Presentation
	Spreadsheet
Programming	Scratch
	Basic

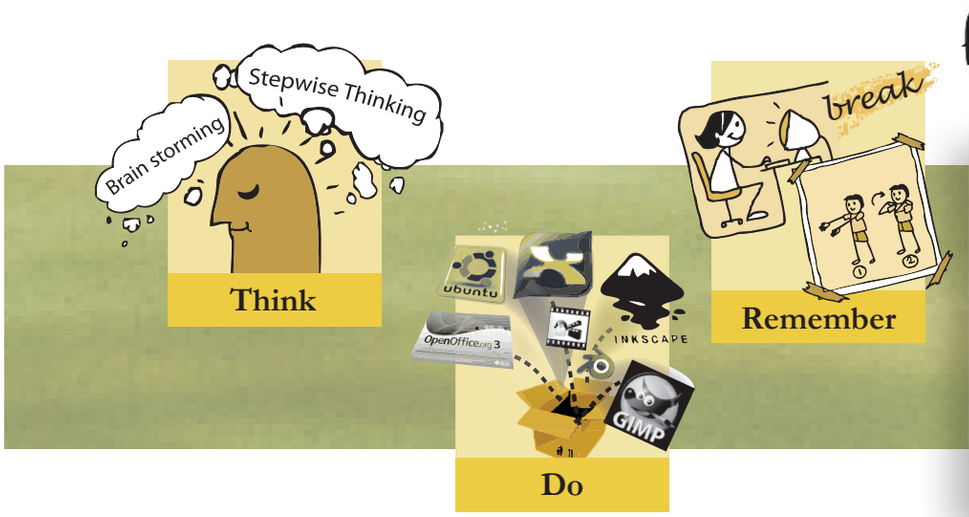
Activity: Add a column to the above table to describe the specific concepts and skills learnt in these topics.

Jyoti: Let us prepare a mind map to show what all we learnt in thinking process skills.



Activity: Draw a mind map to summarise your knowledge of logical reasoning, brain storming and mind maps.

Moz: I see that you have used multiple forms of representation to revise the information. Good job. Now let us begin learning new topics.
Tejas and Jyoti: We are excited to learn more.
Moz: See you soon. Chin Chinaki...



Learning Outcome

At the end of this lesson, you will be able to:

- Recall topics learnt in Computer Masti till level VI, such as familiarity with computers, thinking process skills, computer applications, programming, social/ ethics and safety aspects.

Teacher's Corner

Level VII

Lesson 1

- The objective of this lesson is to revise the different topics learnt in previous CM books. The different topics covered in various books are presented in the form of mind maps for ready reference.
- Ask students to study each mind map carefully. Highlight the main topics, associated concepts and skills covered at each level.
- Draw students' attention to observe how the same topic is addressed in different book. For example, familiarity of computers is addressed in book1, 2 , 4, 5 and 6. Now ask them to study how the lessons covered under this increases in level of difficulty and takes the learner along.
- Refer the figure and table on themes and sub-themes (pg. 4) and talk about alternative form of representation.
- Focus only on thinking skills and ask students to recall what all they learnt in each of the lessons. You can ask students to draw a mind map to summarise their knowledge.
- Note that this is an activity-based lesson. Hence, no separate worksheets are included.

Further Reading:
http://www.computermasti.com

2 Inside Computers: Hardware and Operating Systems

Aim: In this lesson, you will learn:

- The main hardware and software components of a computer.
- Functions of different computer parts.



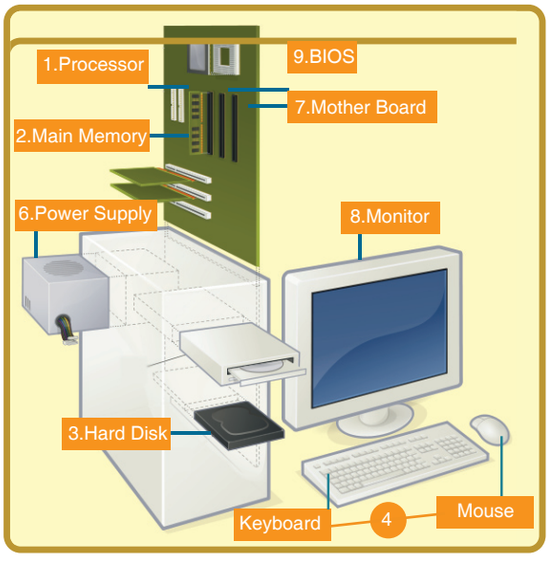
Tejas, Jyoti and their friends along with Moz are examining an open CPU (Central Processing Unit).

Jyoti: Computers are made of electronic parts called **components**. Each component has a specific function. They all work together when a computer is operated. Some of the components can be seen partly from the outside. Some components are inside the computer box where we can't see them.

Tejas: Seeing the components inside a computer is interesting. Look at the brain of the computer (CPU). Whenever we press a key, click the mouse, or start an application, we send instructions to the CPU. These are all executed by the CPU.

Jyoti: Look at these other components. How can we know their details?

Moz: We can do by starting the computer and exploring the system. The lesson contains description of each of the parts 1 to 9 labelled in the figure below. Lets go to the lab now.



Tejas, Jyoti and Moz move to the computer lab discussing about the components of a computer.

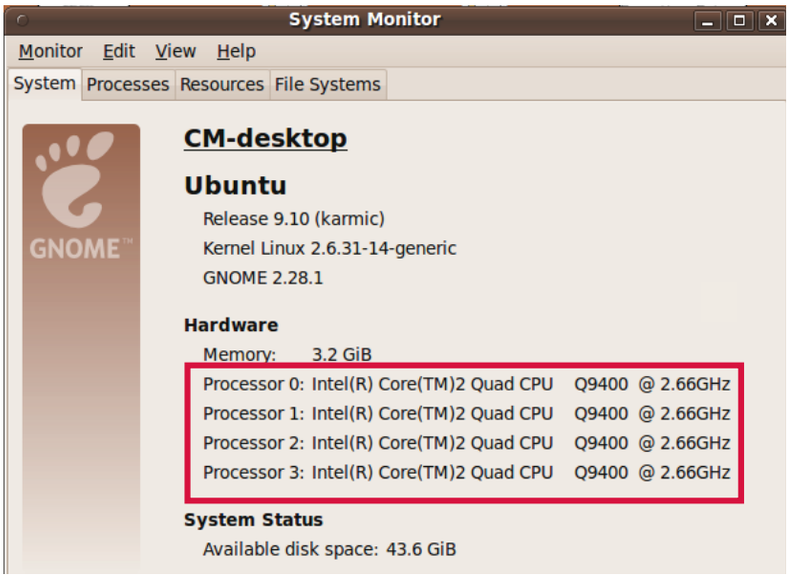
Jyoti: Can we see the details of a computer's components after logging in?

Moz: Yes. On the desktop, from the taskbar, click on the *System* sub-menu. Under *Administration* click on *System Monitor,* which shows you details and status of hardware and software of the computer.

1 Processor (CPU)

Central Processing Unit (CPU)

Executes program commands

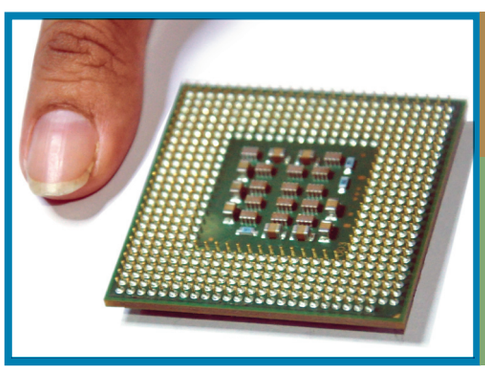


Jyoti: Hey! There are four processors (CPU) in this computer. There are many details for the processors.

Moz: The processing of your instructions is shared between the four processors, just the way you share work among your team.

Jyoti: What does 2.66 GHz mean?

Moz: This stands for 2.66 Giga Hertz. You know that Mega means million and Giga means billion. Hertz is a unit of measurment that measures the processing speed. It means cycles per second. CPU needs one or more cycles to perform an action. More cycles per seconds means that the CPU can process more instructions per second. So, the higher the processing speed, the faster the CPU can process instructions.



Concept

The Central Processing Unit (CPU), also called a **processor**, is like the brain of the computer. It executes instructions in response to commands.

Info

- A processor's speed is measured in **Megahertz (MHz)**, or **Gigahertz (GHz)**. Higher the speed, faster is the execution of instructions.
- The CPU is generally a **2 inch ceramic square** with a **silicon chip** located inside. The chip is usually about the size of a thumbnail.

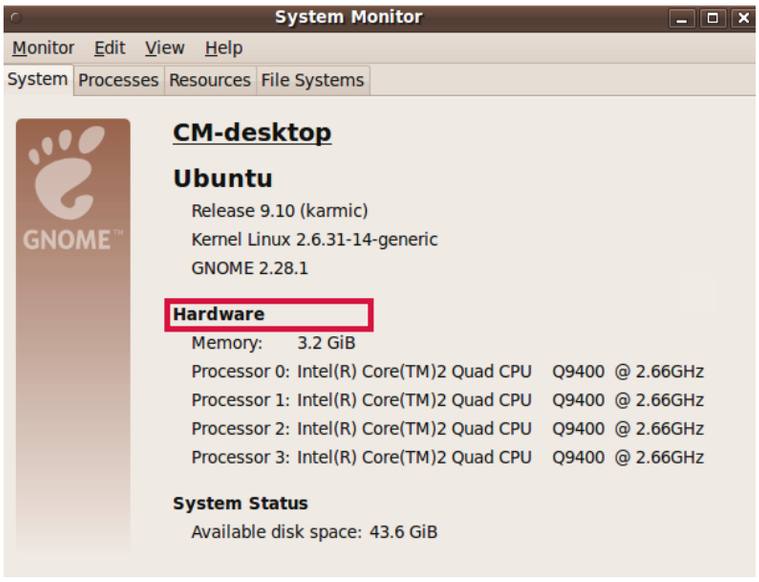
2 Main Memory (Primary)

Central Processing Unit (CPU)

Executes program commands

Main Memory

Primary storage area for programs and data that are in active use



RAM



Concept

- RAM (Random Access Memory) is also called main memory. RAM is used to store data and instructions that are currently being processed by a computer's CPU.
- Data is temporarily stored in the RAM till it is saved to the hard disk. The data in RAM is erased when power is switched off.

Info

- RAM is measured in **megabytes (MB)** or **gigabytes (GB)**. A bit is the smallest unit of data in computer processing. It represents a digit in the binary system. So a bit can have either a value 0 or value 1.
- A byte is a group of eight bits.
 Example of Bit : 0 or 1
 Byte: 1 0 1 0 1 1 0 1
- A **Kilobyte (KB)** is 2^{10} bytes or 1024 bytes. A Megabyte (MB) is 1024 kilobytes. A gigabyte (GB) is 1,024 megabytes.
- The **more RAM** a computer has, the more data it a can access quickly. So more the RAM, the **faster** a computer performs tasks.
- Ubuntu OS by default uses Gibibyte or GiB to denote its memory, while Windows uses Gigabyte or GB by default.
- Though GiB is closely related to GB, the actual conversion is 1 GiB (nearly equals to sign) ~ 1.074 GB

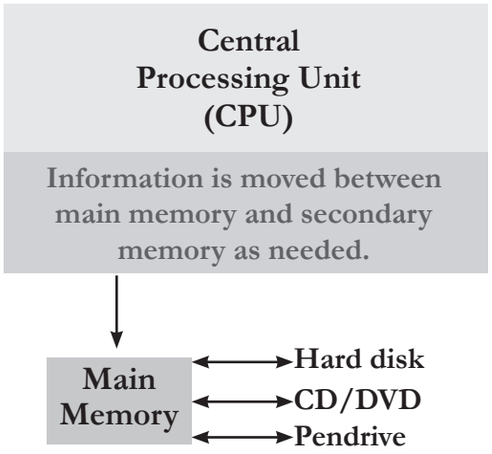
Tejas: Main memory is used to store programs and data that are currently processed..

Moz: The computer's instructions are stored in Random Access Memory (RAM). This is where programs executes. For example, when you using word processor application to create a document or Scratch to create an animation, the corresponding instructions are loaded into the RAM.

Jyoti: What does 3.2 GiB mean?

Moz: Let us first understand how computers store information. Computers store information as numbers, in a binary system. A binary system has only two numbers 0 and 1. (Decimal system has 10 numbers 0.....9.)

3 Secondary memory (Hard disk and removable storage)





Moz: The hard disk stores multiple types of data and applications. The documents and content that a user creates and saves, the software to operate the computer, and the applications like Word processor and Scratch, are stored on the hard disk. The computer loads the instructions from secondary memory (hard disk) into main memory (RAM) as and when required.
Jyoti: The amount of data and the numbers of programs that we can store on a hard disk depends on the size of the disk, which is usually measured in giga bytes (GB).
Jyoti: When we save data in an application, the content is written into secondary memory.
Tejas: Whatever information we save on a computer, is written to the hard disk, which can be retrieved later. It is a permanent storage device.



Concept

- Secondary storage is the memory where the information is stored permanently, till it is explicitly deleted. Information is moved between main memory and secondary memory as and when needed.
- On power off of a computer, data on hard disk and other secondary storage devices are not erased.

Info

1. The hard disk drive is the data center of the computer. Operating system, software, content (created and saved by users) are stored here until explicitly deleted. The hard disk drive is usually found inside a computer.
2. CD/DVD and pen drive are removable storage devices. These can be used to backup important data and information. They also are used to distribute, share information or transfer information from one computer to another.

Tejas: We can also record data to CD/DVD or pen drive. The storage capacity of these devices is usually not as much as a hard disk drive.
Moz: Correct. These devices are called **removable storage devices**. These can be removed from the computer and carried wherever required. (The hard disk is also sometimes removable.)
Jyoti: A few days ago I created a greeting using the computer. I saved it on the hard disk and also copied it on to a pen drive. Next day, the computer did not work. But since I had a copy on the pen drive, I could copy the file on to another computer and mail it to my friends.

Moz: Making a copy of a document or information that you create on the computer, is called taking backup. **Backup** of content (documents, paintings, reports, etc.) that you create is important. Backup can be taken on CD/DVD, pendrive, a removable hard disk, or another computer to which you have access.
Tejas: We can also mail a copy to ourselves if we have Internet connectivity.
Moz: Right. This is good option when you have Internet connectivity.
Jyoti: We also get books, games, educational lessons on CD/DVDs.
Moz: Correct. These devices can also be used for distribution and sharing of resources.

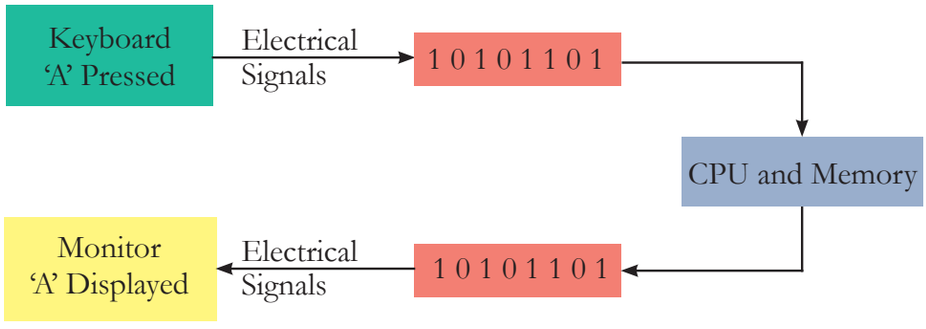
Concept

Backup

Making a copy of data is called Backup. Backup of data and information that you create is important. Many backup options are available, like mailing a copy of the content to yourself, taking a backup on pen drive, a CD/DVD or another computer. This ensures that even if one device fails, you have a copy of the content and can access it using another computer.

4 Input/Output (I/O) devices

Jyoti: We already know what are input and output devices. [1] Examples of input devices are keyboard, digital camera, and mouse. Printer and Monitor are examples of output devices.



Moz: Correct. User interacts with the computer using these devices. These are also called **peripheral devices**. The electrical signals for the alphabets typed on a keyboard are converted to binary system and stored. When the computer displays the data on a monitor or when data is to be printed, the binary system is again converted to electrical signals and then to the human understandable characters.
Tejas: Oh! This is how input gets converted to output in a computer.



Concept

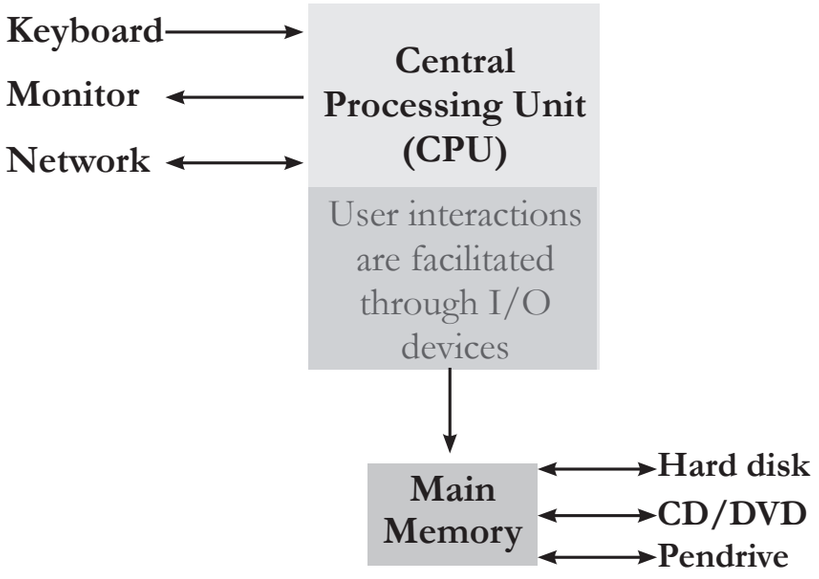
- An input device converts data and instructions entered using the device into a pattern of electrical signals. These signals correspond to binary code that can be processed by a digital computer. A user inputs data and instructions (example: using a keyboard), initiates a task (example: using a mouse), transfers images (example: using a web camera), using the input devices.
- An output device reverses the process, translating the binary code into a form intelligible to the user. The computer displays processed information (example: a print out of the information or audio, video) through the output devices.

Info

- Some devices can handle both input and output. The network device (called network card) in a computer is both input and output device.

[1] Input devices are used to send information to the computer and output devices are used to receive information from the computer. CPU is neither an input nor an output device. It takes information from the input devices, processes it and sends the result to the output devices. This is called processing.

5 Connection Ports



Tejas: At the back of the computer we find many sockets. These are called connection ports used to connect the external devices like keyboard, mouse, speakers, power and monitor, to the CPU.
Jyoti: Ports are of different shapes and sizes. Some examples are network port, USB port and printer port.
Moz: The ports look different since they carry different amounts of information. The colour code and look also help to quickly identify the correct port while connecting peripherals to the CPU.

Back Panel of a Desktop



Concept

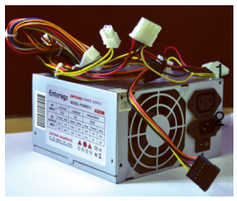
- A port is a connection interface between the computer and other computers or peripheral devices. It provides a signal transfer mechanism between devices. The power cord sockets (6) and a fan (7) to cool the desktop are also available on this panel.

Info

- At the back of a desktop computer various connection ports are available on a panel to connect the external devices and power cord. On a laptop these are available on the left and right side edges. Some common ports and their details are as follows:
 1. PS/2 Port: Used to connect the mouse and keyboard.
 2. Ethernet Port: Used to connect the network cable.
 3. Audio In/Audio Out: Connect various audio devices, including speakers, microphones, headsets, etc.
 4. VGA Port: Monitor is connected to this port.
 5. USB Port: The Universal Serial Bus port is one of the most useful ports. These USB ports let you attach a variety of devices such as mouse, printers, keyboards, web cameras, USB/flash drives, and digital cameras to the computer quickly. Most peripherals have a USB version.
 6. Power cord sockets.
 7. Fan.

6 Power Supply

Tejas: The computer has a power supply from which all the components get power.



Concept

The power supply unit in a computer converts the power from the wall outlet (usually Ac) to the type of power needed by the computer (usually DC).

Info

- The power supply unit sends power through the cables to the motherboard and other components. The power cable from a wall outlet is connected to a socket in this unit.
- The power On button for a computer is usually available on the front panel on a desktop. For a laptop, it is usually available above the keyboard.

7 Motherboard

Jyoti: The circuit board which holds some of the components like CPU, ROM and has connectors to other components of the computer is called the **Motherboard**.
Moz: Yes. The motherboard connects directly or indirectly to every part of the computer.



Concept

- Motherboard connects directly or indirectly to every part of the computer.
- Main function of the motherboard is to hold the computer's processor and let everything else connect to it.

Info

- The motherboard is the computer's main circuit board. It's a thin plate that holds the CPU (Central Processing Unit), memory, connectors for the hard drive and optical drives, as well as various external ports and peripherals.
- A port is connected from inside to expansion cards which are plugged into the motherboard and are connected to other components by cables which are long, flat bands that contain electrical wiring. The ports are controlled through the expansion cards.

8 Monitor (Display)

Tejas: All the hardware and software components work together and provide us a visual display on the monitor as the output. Monitor is also an important part of the computer. It is connected externally to the VGA port.

Jyoti: There are different types and sizes of monitors. On some, the images are shown very sharply. Why is it so?

Moz: The display depends on the resolution of the monitor. The monitor has a number of dots, horizontal and vertical which are called **pixels**. More the pixels on a display, sharper the image. Resolution refers to the number of individual horizontal pixels and vertical pixels on a display.

Example: 800x600, 1200x1024.

Tejas: So, if the number of pixels of a sharp image are spread out over a larger number of inches, then the image becomes blurred.



Concept

- A monitor is one of the output devices of a computer. The display sharpness depends on the size and resolution of the monitor.
- A monitor has a number of individual dots known as pixels. Resolution refers to the number of rows of dots and the number of columns of dots.
- The size of display depends on two factors:
 - The aspect ratio (the ratio of width to the height of the monitor screen).
 - The screen size (measured from one corner to the other corner diagonally opposite).

Info

- Currently LCD technology is commonly being used for monitors. There are many sizes of monitors. Popular screen sizes are 15, 17, 19 and 21 inches.
- The resolution of display varies. Example: 800x600 pixels to 1200x1024.
- For professional applications, such as medical imaging or public information displays, monitors as large as 40 inches or larger, with higher resolutions, are being used.

9 BIOS software and booting

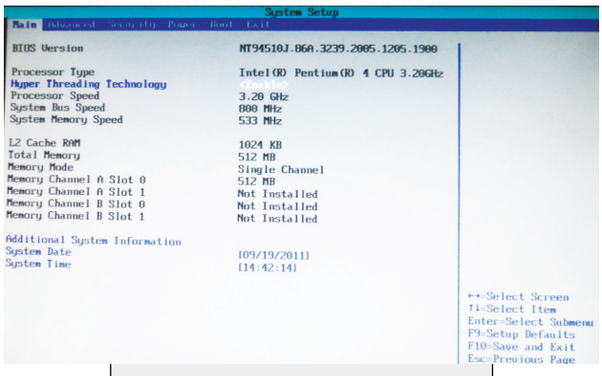
Moz: Now that all the parts are together how do you start a computer? How does the CPU control all the components?

Tejas: We need software to operate the computer.

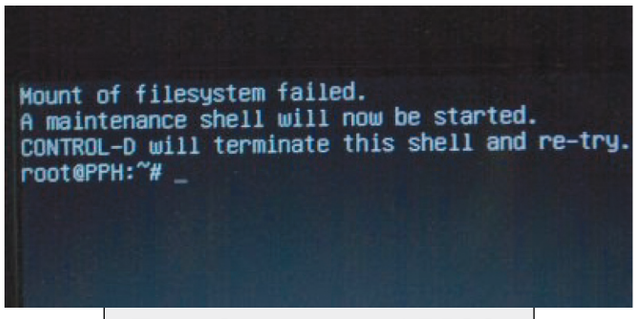
Jyoti: Software are the instructions that tell a computer what to do. Software is required to operate and use the computer. These are BIOS software, Operating system and Application software.

Jyoti: Firstly when we power on the desktop, software called Basic Input Output System software (BIOS) starts or boots the computer. This software resides on a small chip called ROM (Read-Only Memory) or flash memory. The ROM is part of the motherboard.

Tejas: **BIOS** checks whether all the hardware units are working. When we switch on a system, we see many messages informing that a particular hardware is working fine. These are from **BIOS**.



Normal Screen of BIOS



Error Screenshot of BIOS

Jyoti: If a hardware is not working, for example, if a hard disk is not working, then the **BIOS** gives a corresponding error message.

Moz: The most important role of **BIOS** is to load the operating system (OS). When you turn on your computer, the CPU needs instructions to locate the operating system in the hard disk. The **BIOS** provides those instructions.

Flash Memory/ROM



Concept

- Basic input output system (BIOS) is the first software that runs on a computer when power is switched on.
- First task of **BIOS** is to identify and initialize devices such as the display card, keyboard, mouse, hard disk, CD/DVD drive and other hardware. Next task of the **BIOS** is to load the operating system(OS) software (that is on a hard disk or a CD).
- **BIOS** gives control of the computer to the OS. This process is known as booting.

Info

BIOS are usually stored on a Flash memory, or ROM on the motherboard. Flash memory provides fast, permanent storage and can be easily updated. Some of the other devices where Flash memory is used are digital cameras and gaming devices.

Operating System software (OS)

Tejas: After the operating system takes over, we can start using the computer.
Jyoti: When we work on a Word document, print an email, and use Internet browser at the same time, then it must be the OS that manages all these actions.
Moz: Yes. These programs need attention from the central processing unit (CPU) to do the tasks. These programs also need memory and storage, and need to be able to send messages to devices such as the mouse and the printer to accomplish these tasks. The operating system is responsible for handling these applications and peripherals.



Concept

- The Operating System is responsible for managing the computer's hardware and software resources. It controls the memory needed for computer processes, manages disk space, controls peripheral devices, and manages user communication with the computer.
- The difference between BIOS and Operating System(OS) is that the BIOS has very limited instructions. At the end of the booting process, BIOS hands over the control to OS. Actions from user login to application execution, input, output, processing and controlling devices are handled by the OS.

Info

- Operating System is software that is installed on the hard disk. There are many operating systems available. Example: Linux (Ubuntu, Redhat, Debian), Windows (Vista, XP,Windows 7) and MAC OS.
- The operating system loads at the end of booting process. From this point, the operating system controls the way in which the computer functions.

Application Software (OS)

Tejas: We already know about application software. We have used quite a few of them, such as Scratch, word processor, email application and games. We can also install new application software as and when required.

Moz: Any software, whether it is **BIOS** software or Operating system or application software, consists of instructions written by programmers. Specific programming languages are used to build each software.



Concept

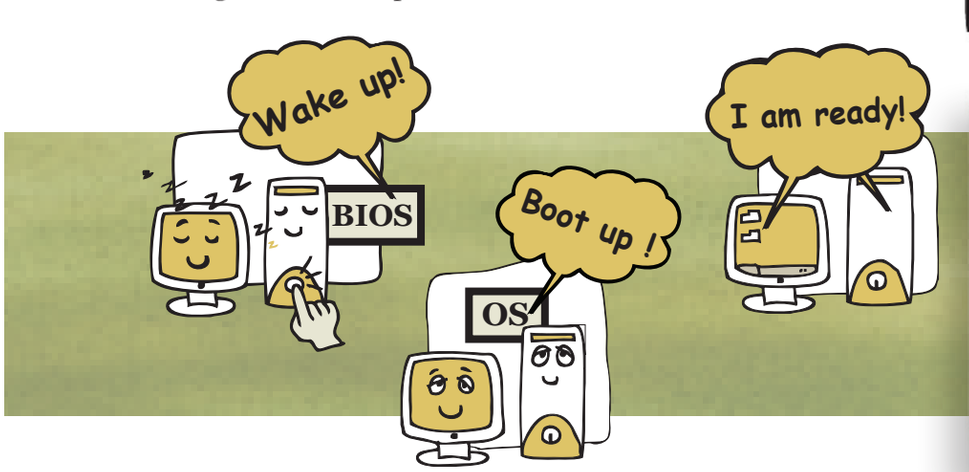
Applications are software written using a programming language. Applications are programmed to perform specific tasks.

Info

There are many types of applications like a browser application, a word processing application, a game playing application, an application to paint or build an animation, an email application and so on. New applications can be installed on a computer as and when needed. These applications reside on the hard disk.

Tejas: It was very interesting to know how so much work happens inside a computer.

Moz: Now you know how the components of a computer, both hardware and software, work together to complete the tasks. Chin Chinaki...



Learning Outcome

At the end of this lesson, you will be able to:

- Categorize a computer component into hardware and software.
- Identify various parts inside a computer and state their functions.
- Define BIOS, OS and other software.

WORKSHEETS

1. Classify the following as Hardware or Software. Write H or S next the word.

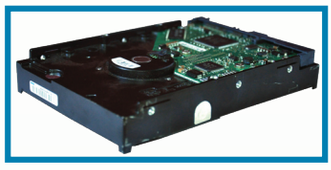
	H/S		H/S
Motherboard		BIOS	
Monitor		Word processor	
USB Port		Linux	
Windows		Ubuntu	
Pen drive		Cellphone	
RAM		Scratch program	
ROM		Printer	
Tux paint		Scanner	
Childsplay		Webcam	
Internet browser		CD	
Keyboard		Quick time Media player	
Hard disk		Ipod	
Powepoint		Speaker	
Impress		Microphone	
DVD Drive			

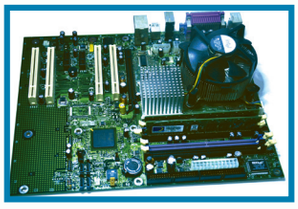
2. Fill in the blanks.

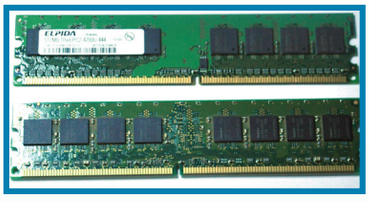
a. Identify and label following pictures, using the list given below:

List of labels:

- Hard disk
- Motherboard
- Pen Drive
- RAM
- Power supply
- Scanner
- Flash memory
- CD drive
- CD

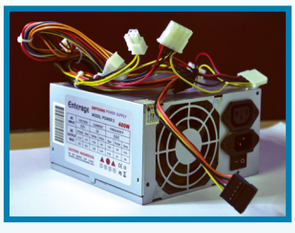
















WORKSHEETS

2 b. Fill in the blanks. Choose from the list in (a).

1. The documents and content that we create and other applications like word processor and Scratch, are stored on the _____ .
2. The _____ is the computer's main circuit board which holds the CPU.
3. To back up your data, you can use a _____.
4. The _____ is an example of a peripheral device that is used to scan documents and photographs.
5. The _____ unit sends power through the cables to the motherboard and other components.
6. _____ is the computer's short term memory.
7. The software which initialises major hardware components of the computer resides in a _____ .

3. Play scrabble.

Choose letters from the scrabble rack and unscramble them to answer the questions, as shown below.

Question	List of rack images with jumbled letters	The rack image with blank tile
You normally do this to keep a copy of important documents.	A C P K B U M	B A C K U P
Computer uses this system to store information digitally.	R Y I N B T A	
My resolution can be changed for picture clarity.	M T O I N E R	
I am the storage area responsible for storing active applications.	R O M Y M E	

4. Which of the choices below are NOT a function of the Operating system.

a. It controls the memory needed for various processes.

b. It controls peripheral devices.

c. It is the first software that runs when computer is switched on.

d. It manages the user's communication with the computer.



5. Fill the missing information.

Component	Corresponding Units of measurement
Monitor screen	Pixels
Size of the monitor	
Microprocessor speed	
	GiB, MB

6. What are two ways to store the data in each of the following cases?

a. Neela is working on a presentation at home. Tomorrow, she has to take it to her office and give the presentation. Her computer has an Internet connection, CD/ DVD drive and a USB port. Her company also has Internet connection at their premises:

b. Parul is doing her home work on her home computer, which does not have an Internet connection. She has to take the work to school and show it to her teacher:

c. Sai is writing an essay using the word processor, on a computer in the school. He wants to take the essay home to work on it. The Computer does not have a CD/DVD drive and but has a USB port. It also has an Internet connection:

7. Tanvi has typed a story and saved it on the computer.

a. Where will the data get saved? _____
(Hard disk, BIOS, Monitor)

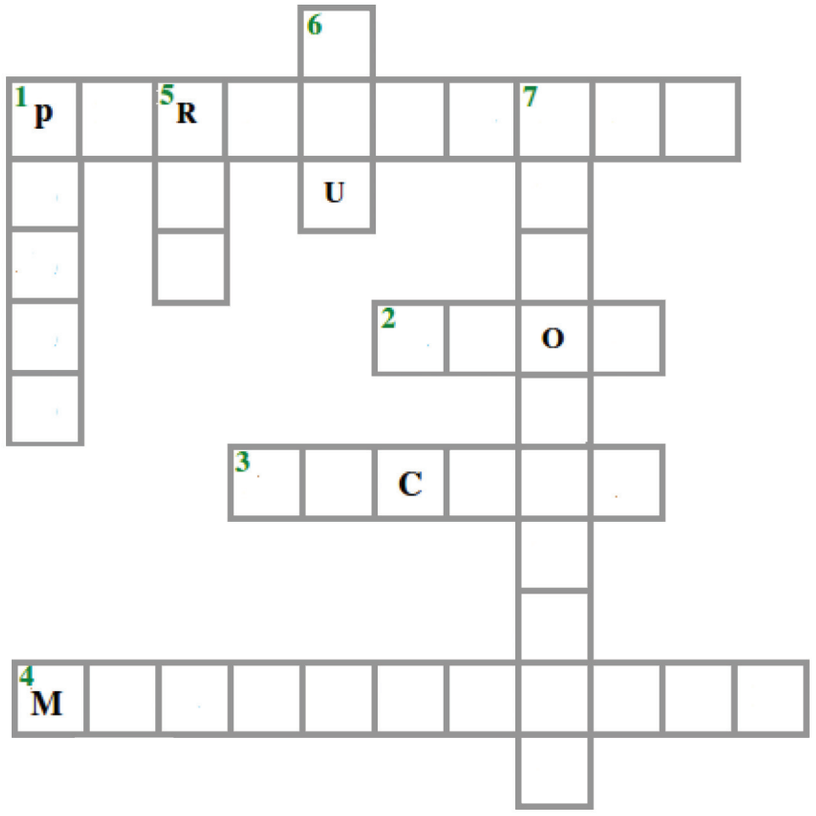
b. If now she is editing the story without saving it, where will the data be kept? _____
(OS, RAM, ROM)

c. While she was working, the power suddenly goes off. What could happen to the edited information? Pick all the right answers.

i. It can be partially recovered when you start the application the next time.
ii. It is stored in the main memory of the computer.
iii. Some of the information is lost and cannot be got back.
iv. It gets saved on the Desktop of the computer.

d. What should she do to avoid losing most of the data, even if the power goes off suddenly?

8. Fill in the crossword.



Across

1. A user interacts with the computer using us: _____ devices.
2. I am the software which interfaces the major hardware components of the computer with the operating system.
3. I am a copy of the content that you create on the computer.
4. I am the main circuit board of a computer.

Down

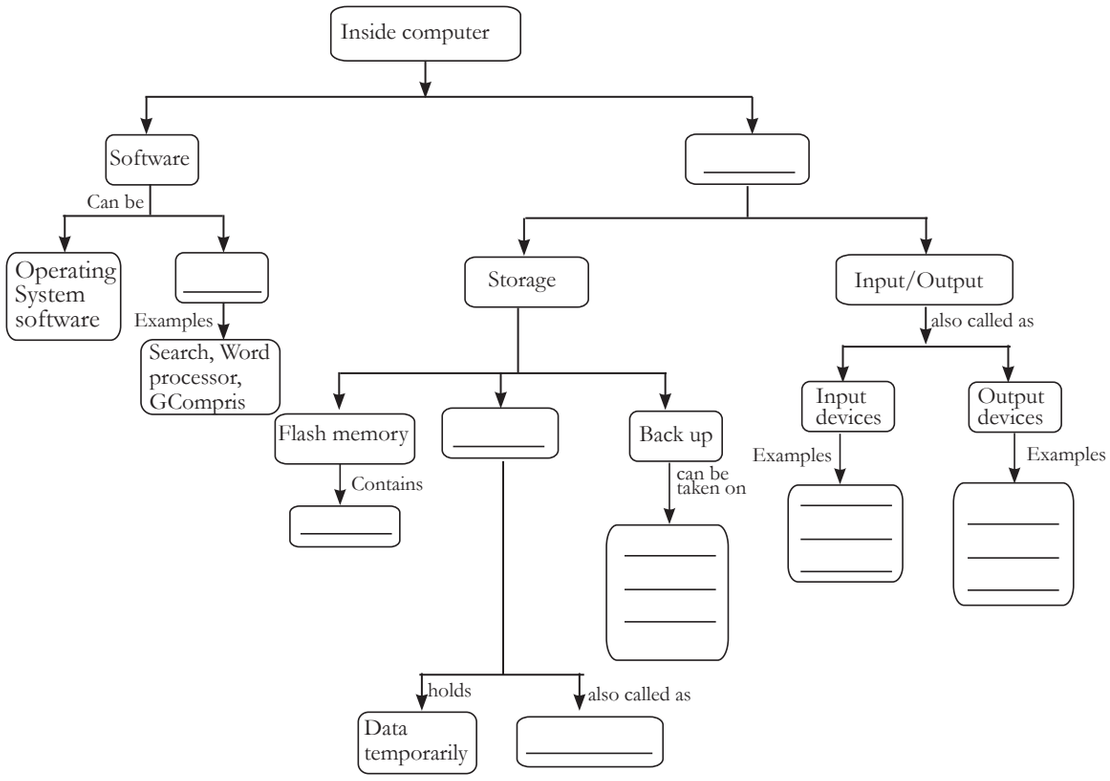
1. We are used to connect the external devices and power supply to a computer. My anagram is torps.
5. I am also called the main memory.
6. I am the brain of the computer.
7. The sharpness of the display increases as the _____ increases.
 Hint: The number of (horizontal x vertical) pixels.

9. Where do the following reside?

Software	Reside on
Application software	
BIOS	
Operating system	
Unsaved data in word processor	

10. Fill in the appropriate blanks with the following terms.

Application software	Hard disk	Speakers	Webcam
RAM	Hardware	BIOS	Monitor
Printer	Pendrive	Keyboard	Main memory
CD	Mouse	Computer	



11. Specify the sequence of steps in the following. First step is already filled.

a.

Booting starts	
Start browsing the Internet	
BIOS checks hardware components	
OS starts controlling the functions of the computer	
Computer gets power supply	1
BIOS loads the operating system	

b.

User enters the user name and password	1
Word processor application opens	
OS loads the word processor application	
Icon for Word processor application on the Desktop is clicked.	
OS checks the login details and allows user to login	

12. The recall icon in this lesson indicates a few places where concepts from previous levels are being applied.

a. Identify one more connect box in the lesson and justify your answer.



Computer based activity (requires Internet)

1. **Multimedia scrapbook**
 a. Open the following URLs and study the content available:
 - http://www.kids-online.net/learn/click/table.html - [here you can click on a computer part inside CPU and learn more about it]
 - http://www.videojug.com/film/what-components-are-inside-my-computer [video of components inside a computer]
 - http://resources.kaboose.com/brain/comp-les2.html [computer connections - hardware on the inside]

 b. Find some pictures, that you like and save them.
 Remember to check the Web page for a copyright notice. Download only those that are Creative Commons.

 c. Write the text for pictures in your own words.

 d. Organize the collected information from the above websites to create your own scrapbook. Remember to quote the sources for each image.

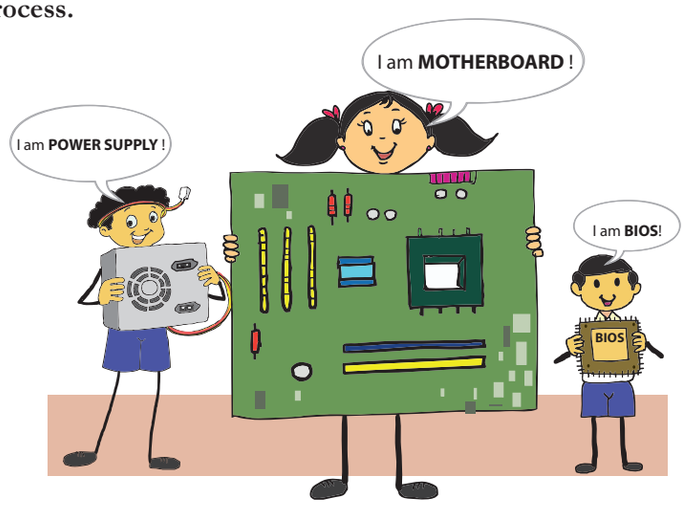
2. **Surf and comprehend information**
 a. Open the following URLs and study the content available:
 - http://www.liutilities.com/how-to/assemble-a-computer/ [list the steps to assemble a computer]
 - http://computer.howstuffworks.com/pc.htm/printable [picture of an open CPU with internal parts labelled and video describing how the various components work together in a basic operating session]
 - http://library.thinkquest.org/C006657/electronics/hardware_inside_a_computer.htm [description of motherboard, processor, memory, disk drives]
 - http://www.comptechdoc.org/hardware/pc/begin/index.html [detailed description of every computer part including peripherals]

 b. Write a short paragraph to describe the content you read on the above websites. Summarize as Mind map.

3. **Find images of different parts inside the CPU. You can use a variety of resource for this, such as computer magazines, Internet, brochures from computer vendors, books, etc. Paste the pictures on cardboard and show the process of how they operate to ensure that the computer is up and running well.**

Group Activity

4. **Set up a skit where the different parts insider the CPU talk to each other and ensure that the computer works appropriately. Explain the functions of each part. The student who acts as power supply initiates the process.**



1. I know how it works

Many devices that we use are also made of interconnected parts. These devices also use computers for some of the functions. Explore the parts and functions for the following devices by forming groups of 5 students in each group.

Pick one of the following devices.

- Tablet (hand held device)
- Mobile
- Airplane
- Household devices - washing machine and microwave oven





Explore and prepare a presentation by using the following guidelines:

i. Find the major parts of the device by searching for information.
ii. Hint: You can find out about the item from the internet, a shop that sells these devices, instruction sheets or brochures about these devices.
iii. What are the major functions of each part of the device?
iv. Does the device come in different sizes?
v. Is a computer likely to be used in this device ? Where?
vi. Prepare a presentation after the next lesson on digital story telling and present it to other groups.



1. Explore how CPU hardware has evolved in terms of size and location.
2. Identify slots on the PC for keyboard, mouse, speakers and mike, Note the color coding.
3. What is connected using Bluetooth?

Teacher's Corner

Level VII

Lesson 2

- This lesson is about various internal parts of the computer. Students are already familiar with input and output devices and have an understanding that CPU is the brain of the computer where it processes the information. Begin the lesson by revising this. Tell them that in this lesson, they will learn more about the different parts and their functions.
- If you have access to a non functioning system, open its CPU and ask students to observe what they see. Else, show them a simulation of how the different parts inside the CPU look (url: *http://resources.kaboose.com/brain/comp-les2.html*). Explain the details of different parts such as power supply, mother board, hard disk, RAM. Elaborate on the distinction between RAM and ROM and which of the two is active in which activity. Refer the different concept boxes in the lesson for this. If possible, show them either actual parts, else you can show the pictures.
- Students would be familiar with different computer peripherals. The teacher can show them pictures of different forms of the various computer hardware (example: CPU sitting in a cabinet besides the monitor, below it or inside it).
- Assimilate their new knowledge on different internal parts with their prior knowledge on input and output devices. Tell them that the observable parts are referred to as hardware whereas the different applications such as games, word processor, presentation are labelled as software. Ask them where do you think these are stored. Use this opportunity to establish how the hardware and software work together for us to be able use the computer.
- Now teach them the difference between software and hardware. You can say that software is a general term for the various kinds of applications/programs used to operate computers while hardware describes the physical aspects of computers and related devices. You can teach about operating system here. Mention that software is divided into applications and system software. Applications allow us to do various activities such as process documents, play games, prepare presentation. System software includes operating system. Refer the different concept boxes on hardware and software for further explanations.
- Give a demonstration of how to view CPU details. Draw their attention to the different units of measuring computer speed and size of hard disk.
- Educate the students how to measure the size of monitor and identify/change screen resolution.
- Teach the students about the primary and secondary storage devices and importance of taking backups of important data on the computer.
- To reinforce understanding of the functions of various computer parts do the group activity (role play) included in the lesson.

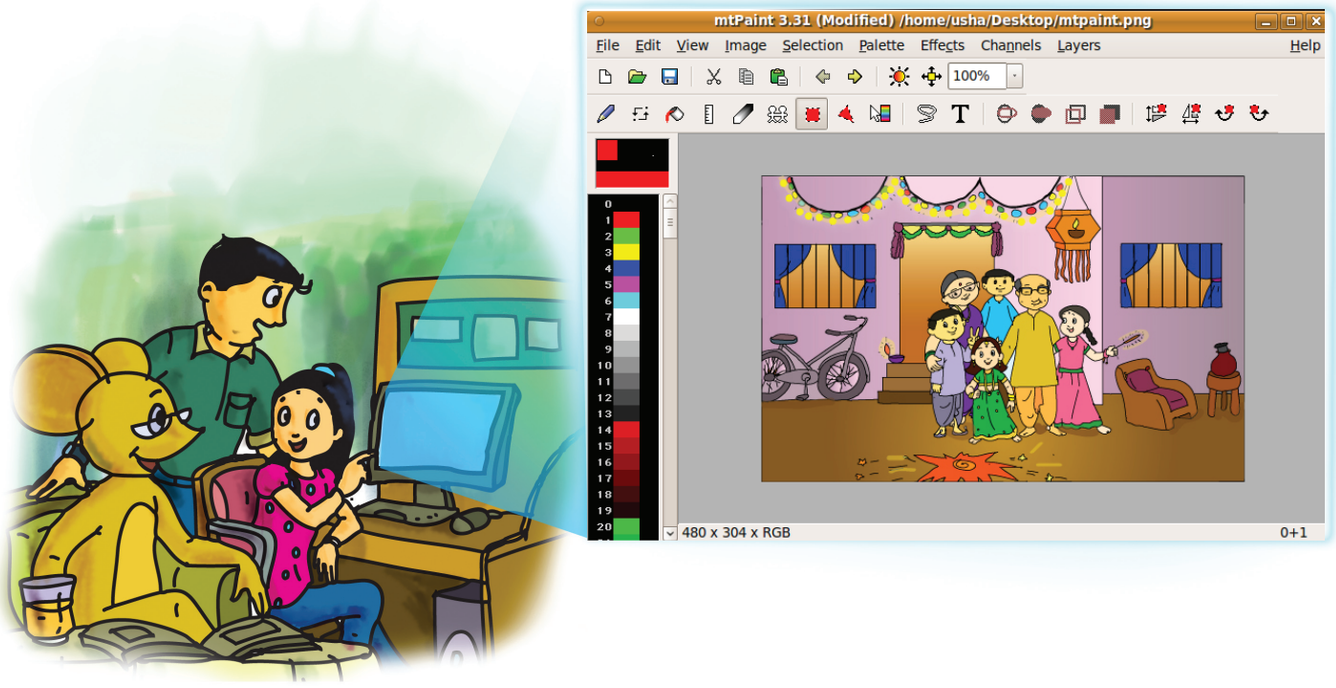
Further Reading:

http://www.indg.in/primary-education/multimediacontent/general-knowledge/how-things-work-computer
http://computer.howstuffworks.com/inside-computer.htm
http://en.wikibooks.org/wiki/How_To_Assemble_A_Desktop_PC/Assembly
http://www.comptechdoc.org/hardware/pc/begin/hwmotherboard.html
http://www.kids-online.net/learn/c_n_l.html
http://resources.kaboose.com/brain/comp-les2.html

3 Image Editing: Creating Collage

Aim: In this lesson, you will learn:

- The different options and tools to edit an image.
- The different ways to change and/or add attributes of an image.



Jyoti: I want to prepare a souvenir for my grandparents on their wedding anniversary. Tejas is helping me to do this.

Tejas: Jyoti's dad has given us photographs of her grandparents on a CD. (1) Removable storage

Moz: You can create a collage or poster or booklet using these photographs.

Jyoti: I want to use these photographs and show some interesting events in the life of my grandparents. Let us make a collage.

Moz: A pictorial illustration is a good choice for your purpose.

Tejas: Let us list the steps for this task.

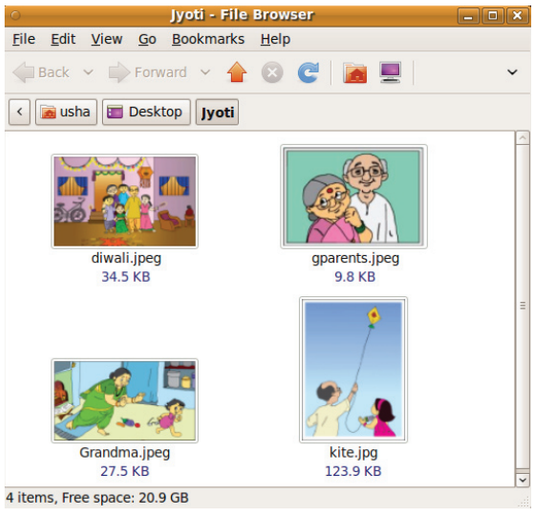
Jyoti: First, I need to select the photographs that show some interesting events of their lives.

Tejas: Second, arrange the photographs in a sequence of when these events occurred.

Jyoti: These photographs can then be inserted into a collage.

Moz: I see that you are applying your knowledge of different thinking skills to decide the photographs to be included. (2) Thinking Process Skills

Tejas and Jyoti select some photographs.



(1) CD/DVD, pen drive are removable storage devices, that an be used to transfer files between computers, and can be used to take backups.

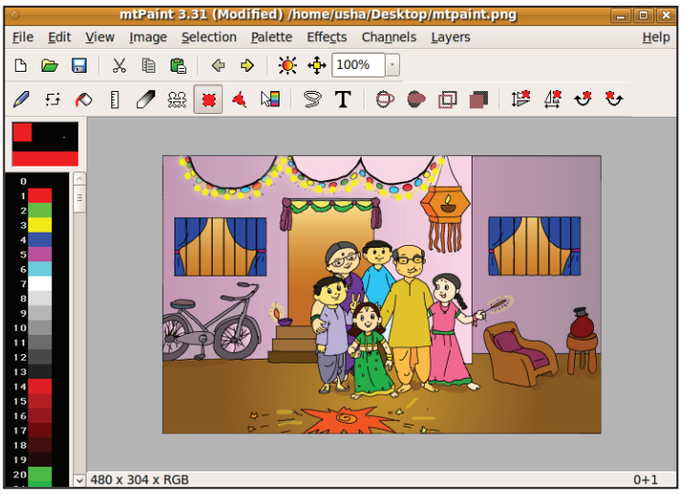
(2) Draw on your knowledge of thinking process skills, while working on any task or application. In the given example, dividing the task into a series of main and detailed steps and selecting a few photographs over others involves Step wise thinking and logical reasoning.

Jyoti: Some of the pictures need modification before we can use them in the collage. We need to use an application for editing pictures.

Moz: There are many applications available for editing images, like Gimp and mtPaint. Let us explore 'mtPaint' which is a simple image editing application with various utilities.

Tejas: Ok. Let me double click the icon to start the application.

Jyoti: Let us use File-> Open option to open one of our pictures and explore the different options available.



Tejas: Let us see how to change the colour in the pictures. I wonder if we can also add text to this picture.

Jyoti: Can we select some portions of the image (picture) for the collage?

Moz: Yes. These are part of the image editing features.

Concept

Image editing concept

Image editing is typically done in two ways:

- Changing the image by manipulating the attributes like size, colour, contrast, etc.
- By adding new attributes like shapes, text or new painting.

Moz: Let us now see the first type of image manipulation.

Jyoti: I want to remove the empty chairs and the cycle in this image. I want to retain the rest of the image.

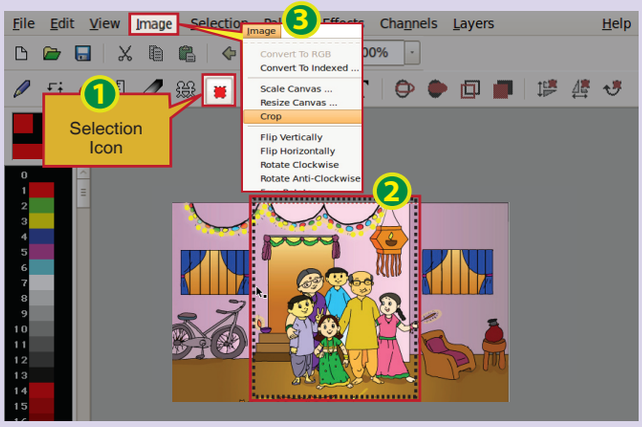
Moz: So you want to select a specific portion of the picture? You can use the 'Crop' utility.

Skill

Crop an image

To crop an image:

1. Click on the 'Make Selection' icon from the toolbar.
2. Select the required portion of the image.
3. From 'Image' option on the menubar, select 'Crop' to crop the image. Only the selected portion is retained.



Jyoti: Look at the cropped image.

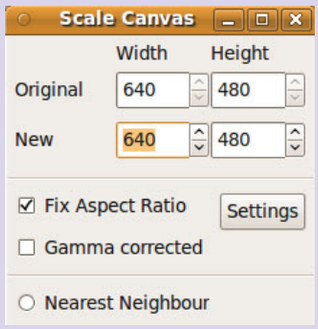


Tejas: We need to reduce the size of the images to include in the collage. Suppose we want to reduce the size of this image. Can we do it without losing some part of the image.
Moz: Yes. You can. This is called **scaling** of the image.

Skill

Change the Scale of an image

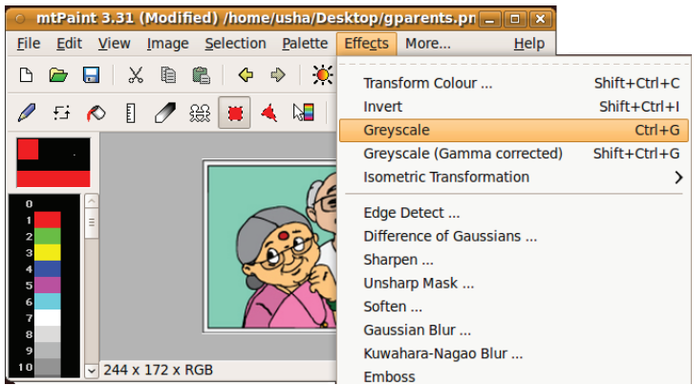
1. From 'Image' option on the menubar, select 'Scale Canvas'.



Explore these on your own.
(See activity on page 33.)

2. In the pop up window, enter the desired width and height of the canvas and click OK. The canvas is set to the new size.

Jyoti: It would be fun to make some pictures look like they are very old. Can we convert a colour image to black and white image?
Moz: Pictures in black and white are called grayscale images. These images are composed only of different shades of black. Explore whether grayscale option is available in mtPaint?
Tejas: Yes. I found it! It is under the 'Effects' option on the Menubar.



Jyoti: I clicked it..and see how the same picture looks in grayscale!

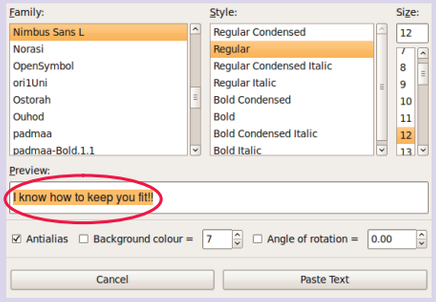


Moz: These are some of the options we have used for manipulating the image. Now explore options by which you can add other interesting things to the image.
Jyoti: Some of the photographs have dates. I want to add these in the images.
Tejas: We can also add some funny captions for some of these images. Let us try the option: T under Toolbar menu.

Skill

Adding text

1. Click on the 'Paste text' (T) option on the toolbar.
2. In the displayed window, enter the text to be inserted. Also select the Font, Font size and style. Then click 'Paste Text' button.



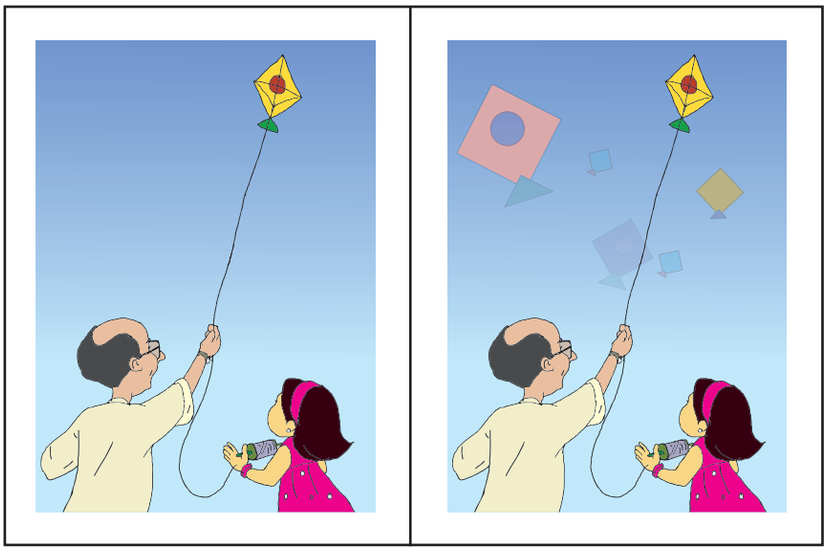
3. The typed text appears in the middle of the image.



4. Move the text box and place it where you want. Then either right click the mouse or press the 'Enter' key on the keyboard. The text is now placed in the desired spot.



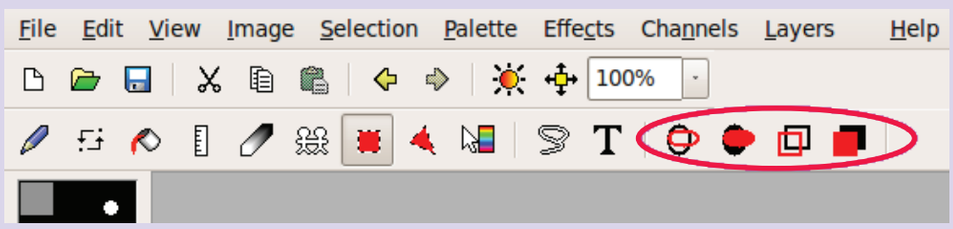
Tejas: Let us add more kites to this photograph of you and your grandfather flying a kite. It will look more colourful.
Moz: Apart from inserting text, you can also add shapes in images.



Skill

Adding shapes to the image

1. From the toolbar, choose either 'Make Selection or Polygon Selection' button ()
2. Select the area in the image where you want to insert a shape using the mouse.
3. Now click the desired shape from the toolbar.



4. The selected area is filled with the clicked shape.

Tejas: We have a picture of Jyoti when she was two years old, running away with grandma's glasses. Let us make this image more interesting. Can we add some speed lines to make her look like she is running fast?

Moz: One way to introduce this is by using the 'Smudge' option on the toolbar. When you use this option and drag the cursor, the colour in that area is smeared or blurred.



Jyoti: Wow! Now the picture is full of life with 'Smudge' effect. It looks as if I was running in a competition.

Moz: Yes. There are many such tools like flood fill, draw straight lines, draw and fill shapes which can be used to bring life to your images. Now that you are done with the editing of the images, save them.

Jyoti: If I press 'Ctrl+S'(to save the image) now, it will overwrite on the original image, and I will lose the original image. So let us save this image using 'Save as' which allows us to change the filename and also retain the original image. (1) Files: Saving, Naming

Moz: Good thinking Jyoti! Alternatively, you could have also made a copy of the original image with another file name before you started editing this image.

Tejas: While saving, under the 'File Format' option, I see so many options like GIF, PNG, JPG, TIFF. Which file format should we use to save the image?

Moz: Similar to the text documents (saved with different extensions like .odt, .doc) images can be saved in different formats with extensions like .jpg, .tiff, .png.

Tejas: mtPaint by default saves the image with .jpg extension.

Moz: Images saved in jpg format are recognized by most applications. You can try saving in different formats and check how they look on the screen.

(1) To record content created or modified on a computer, save in a file with a suitable name. A file naming convention of your own helps in identifying the file to retrieve later. Consider content in the file, date of creation of the file, and version of the file while naming a file. Example: Bday_invite_12oct11.jpg, scprj_Feb11_ver1.odt.

Info

Image file formats

- Commonly used image formats are: GIF, JPG and PNG
- Most images online which use limited colors are saved using the PNG format. PNG files are of smaller size and hence quicker to download.
- GIF files can be saved with a maximum of 256 colours. Due to the small file size it is widely used format for images on the Internet.
- JPG file format is capable of displaying millions of colours at once. Hence photographs are best saved in JPG format.

Jyoti: I am curious to know how the computer saves an image. How does it remember the colours and shapes in an image?

Moz: A digital image, whether it is a photograph or any type of graphic is composed of millions of individual pixels. A pixel is a tiny block of colour like a dot and it is a digital image's most basic building block. The more pixels an image contains the sharper the image.

When you magnify an image you can notice the details of the pixels. For example see the following Figure 1.While storing such an image, the computer actually stores the information about the pixels which are black and the pixels which are not-black (white). This image has only one colour used which is black.

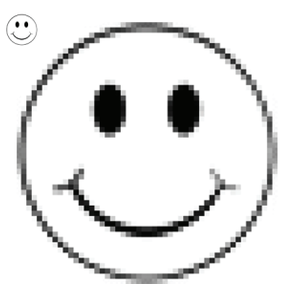


Figure 1

Jyoti: The lines look so jagged in the magnified image. I can't believe it is a circle! It is amazing that when we shrink (or reduce) the size, we can see a smooth line.

Moz: Observe the next two images carefully. Figure 2 shows the same image with the gray shades. Figure 3 shows the same image in colour. In the magnification you can see various shades of the colour.



Figure 2



Figure 3

Jyoti: It is fun to see the magnified view of every image and see the pixels present there.

Concept

Pixels

- A computer screen is made of a grid of several dots called pixels. Each pixel has its own address (Location).
- The address of a pixel is denoted using its x and y coordinates.
- Each pixel also has information about the colour it is supposed to display.
- The more the number of pixels in a given area, the sharper the image appears.

Moz: You are already familiar with the monitor resolution. Similarly the number of pixels in a image is also referred to as image resolution. **Resolution** of an image is the number of pixels present in the image. An image is measured using its width and height. So, the resolution is always represented as the product of the width and height. For example, an image that is 2048 wide and 1536 in height has a resolution of 2048 x 1536 pixels.

Let us do a small experiment.

1. Open a image in mtPaint.
2. Check its resolution.
 - From the menubar, select 'Image--> Scale Canvas.
 - Check the width and height of the image.
3. Now change the resolution by changing the height and width.
4. Observe the changes in the image now.

Does it look blurred? Can you see the pixels? Does the picture fit inside the screen?



Tejas: We opened an image of Jyoti's grandparents that has resolution of 220 x 155.

Jyoti: We changed the resolution of the image to 2000 x1409. We have to use the slider to view the image. With this resolution, the image is blurred and we can also see the pixels.



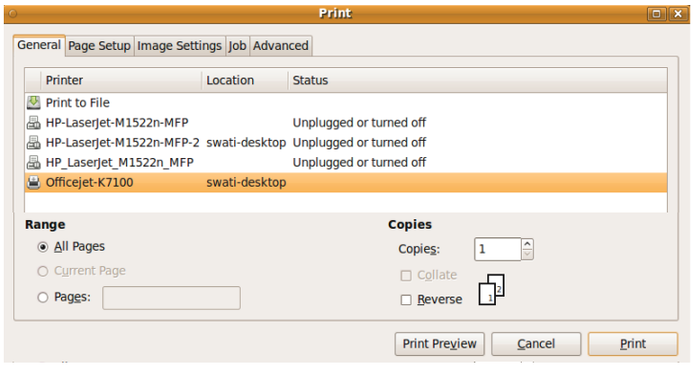
Moz: Now you know that when you increase the original resolution of an image, at some point the image starts getting blurred. Use an image at it's original resolution for a sharp output either on screen or for printing.

Tejas: Now how do we print the image?

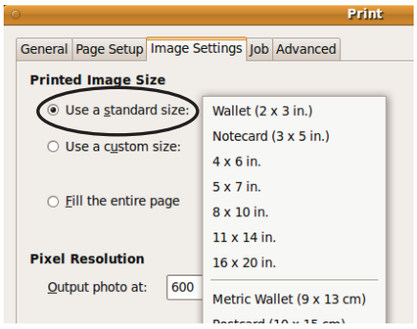
Moz: You can use mtPaint print option and print the image. Since many a time we open images using image viewer, let us explore the print option in one of the image viewers.

Tejas: I have opened a photograph of grandparents in 'Shotwell' image viewer. Properties of the image are as follows.





Moz: Now click on print and select a printer.

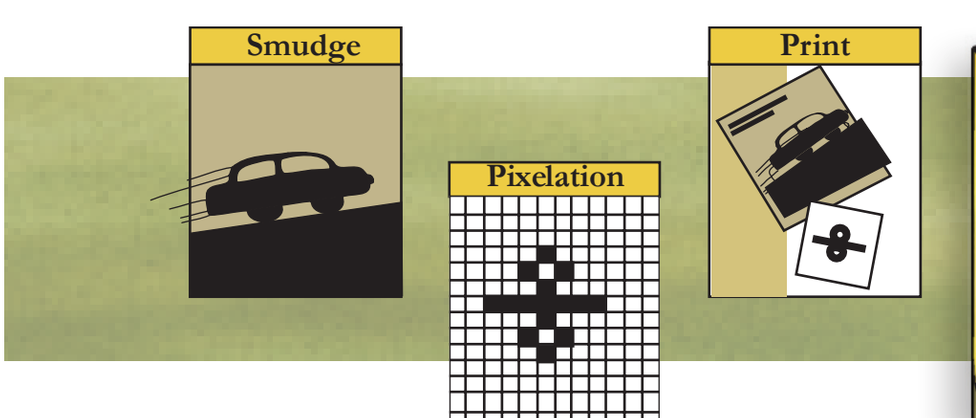


Moz: Next let us look at the Image settings option and the standard sizes that are available for printing.

Moz: Go ahead and find a size that suits your purpose and gives a clear image when printed.
Jyoti: 5x7 size is also not such a good choice for printing our 368x620 pixels image. We have to choose 3x5 which gives a clear print preview.
Moz: Yes. Before printing an image, try various sizes. You can also try the custom size. Use print preview to see how your image will be printed. Decide on a print size that gives you a clear picture for your purpose.
Following are guidelines :

Image Resolution	Maximum Print Size
less than 640X480	Wallet size only
640X480	absolute largest, 4X6
1024X768	4X6
1152X864	5X7
1600X1200	8X10

Moz: Now complete the collage, take a print out and present it to your grandparents.
Chin chinaki...



Learning Outcome

At the end of this lesson, you will be able to:

- Use the various options and tools like crop, smudge to edit an image.
- Compare the size and use appropriate file formats such as jpg, png and gif.
- Define pixel and explain how pictures are stored in a computer.

WORKSHEETS

1. An original image along with images where some effects have been applied are given below. Identify the effect applied on the original for each of the 5 images. Hint: The effect can be one of the following: **smudge, emboss, greyscale, brightness increase, contrast increase.**



0. Original Image



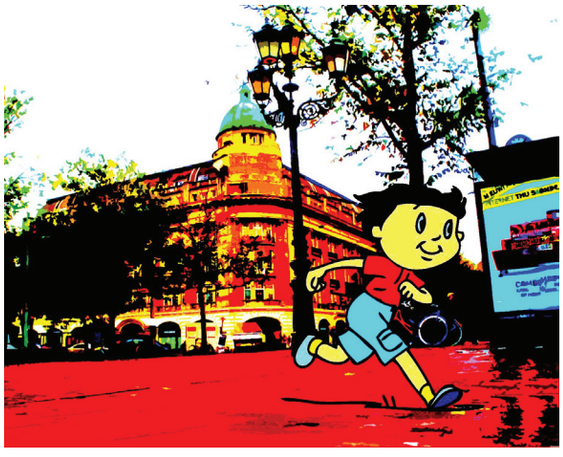
1. _____



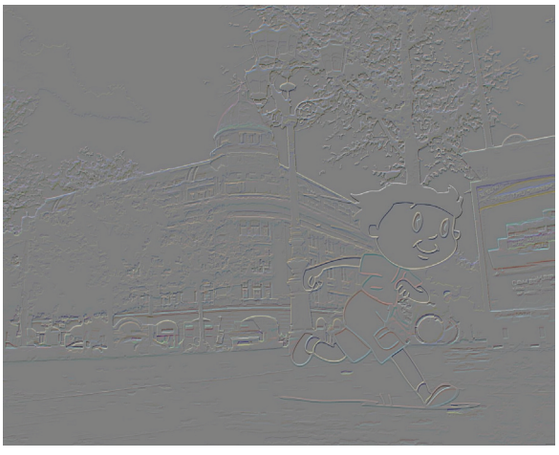
2. _____



3. _____



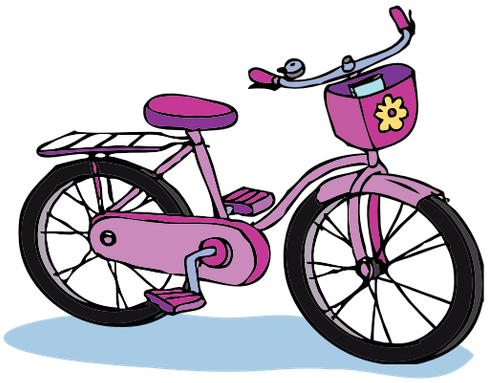
4. _____



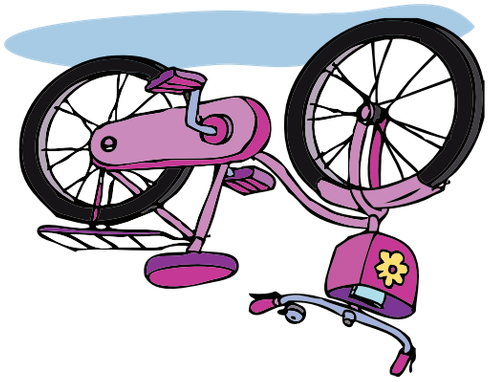
5. _____

WORKSHEETS

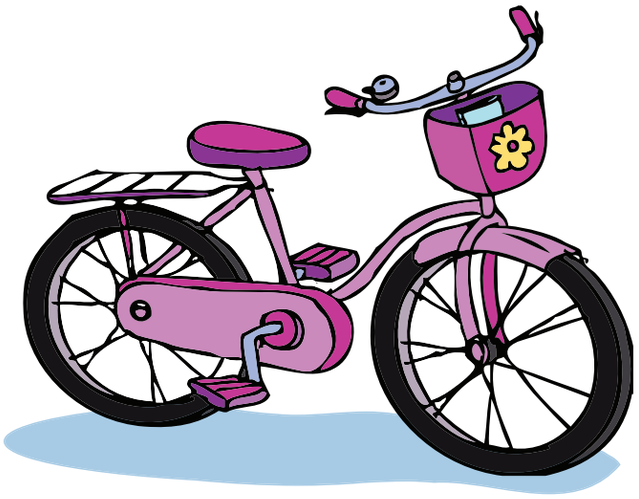
2. An original image is given along with 3 more images. Identify for each of the image which one of the following has been applied:
resize_canvas, flip vertically, rotate clockwise



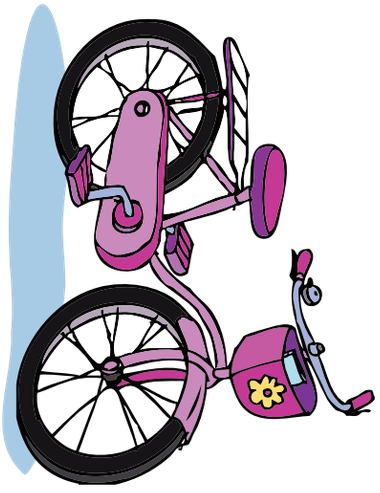
0. Original Image



1. _____

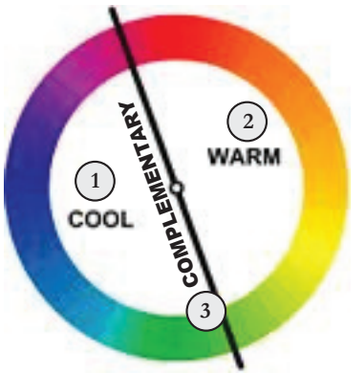


2. _____

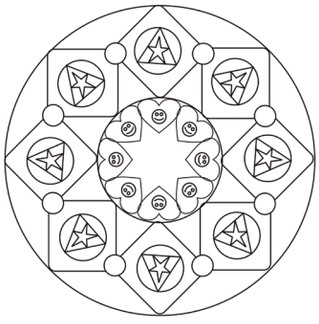


3. _____

3. Following are three drawings. Study the colour wheel. Specify which of the following colour schemes would you use for each of these drawings and why?
Warm colours, Cool colours, Contrast colours.



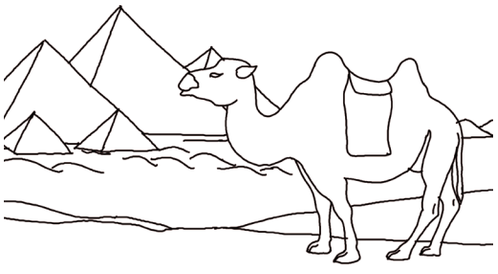
1. The colours on the left of the wheel are known as cool colours - colours which are blue or have a leaning towards blue (yellow-green to blue-violet)
2. The colours on the right, are known as warm colours - colours which are red or have a leaning towards red (yellow-orange to red-violet)
3. Complementary colours are those which are opposite each other on the colour wheel. For example, red is opposite green.



a. _____



b. _____



c. _____

4. **The recall icon in this lesson indicates a few places where concepts from previous levels are being applied.**
 a. Identify one more 'connect box' in the lesson and justify your answer.

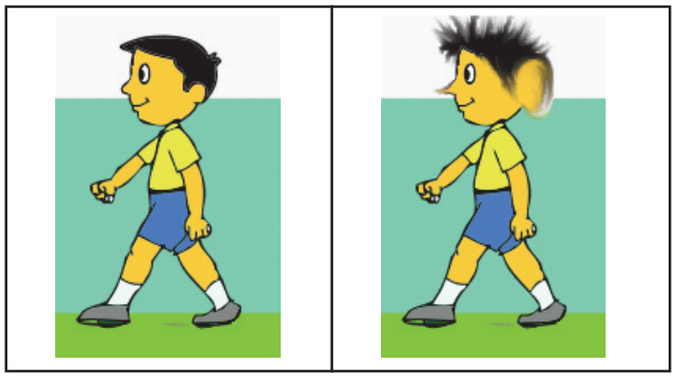
1. Edit a Photograph

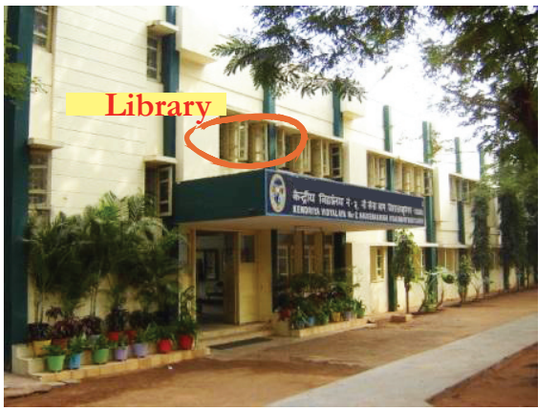
Form groups of three and get a photograph taken. You can scan any existing group photograph. (Use only three people from the group photograph). Use smudge tool and convert the images in the picture to cartoon characters.

To open the mtpaint, do the following:

Applications > Graphics > mtpaint graphic editor

Hint: Use small brush while using smudge.





2. Picture of school building:

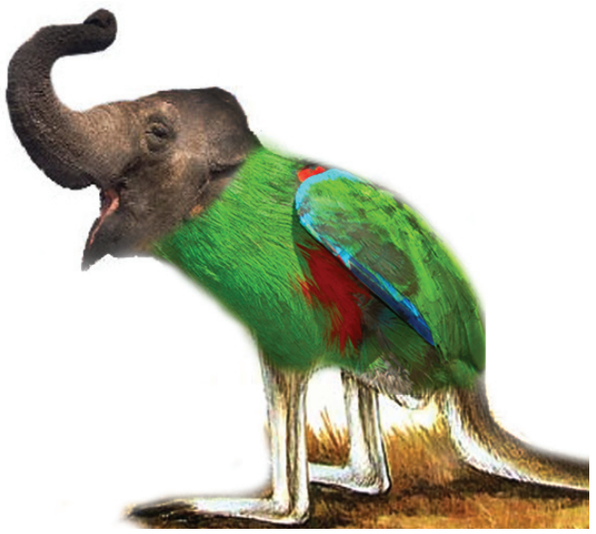
Use the photograph of your school building (either scan and use it or if you have a camera, take photograph so that your class room is also visible). Draw arrows pointing to various parts of the school and label these areas.

Note to teacher- Ideally photos taken of all the buildings and from various angles can be made available for this activity.

3. An Alien from another galaxy:

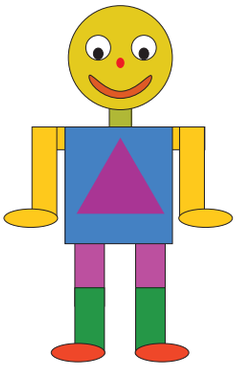
Use birds and animal images (you can download from Internet, scan or take photographs and use). Select, cut, paste from various images of these animals and birds and create an alien. Give an appropriate title that reflects the bird and animal parts that have been used.

Example: *eleparkang* from another galaxy (elephant, parrot, kangaroo- elephant head, parrot body, kangaroo legs).

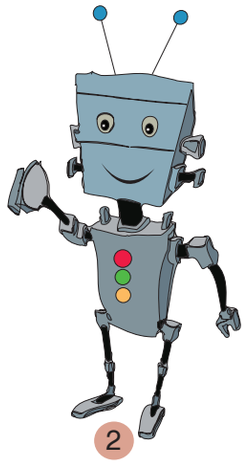


4. A robot

Create a first Robo using drawing tools and then edit it to get second robo. Use appropriate tools from mt paint application and create the two robot as follows:



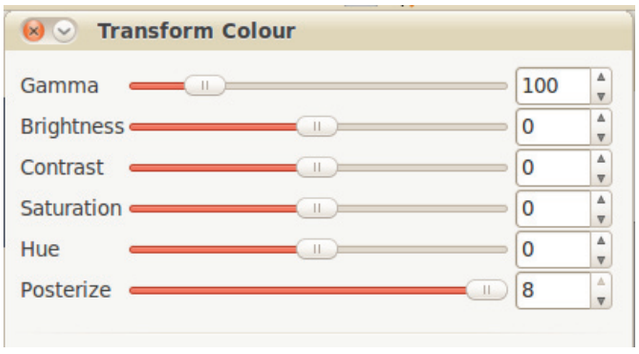
1



2

5. Transform colour

Take an image with bright colours and with some background. From Menu bar click on effects and select transform colour option.



a. Explore all sub-options. For each one of the sub-option, save the image with a value of your choice and give it a caption. Put all the saved images in a page with the captions and give it a title.

b. For each one of the following options, say what happens when the following values are set and give an explanation for the same in a few words:
- brightness is increased to 255?
- Contrast decreased to -100?
- saturation is -100?
- Posterize is 1?

c. Can you make a picture taken in bright light look like it was taken at night? What option can you use to do this?

6. More options in effects:

a. Use the following options and for each one of these, provide your comments on how the picture gets transformed. Note: Use the original image before using each option.
- Invert
- Greyscale
- Soften
- Emboss
- Dilate
- Erode

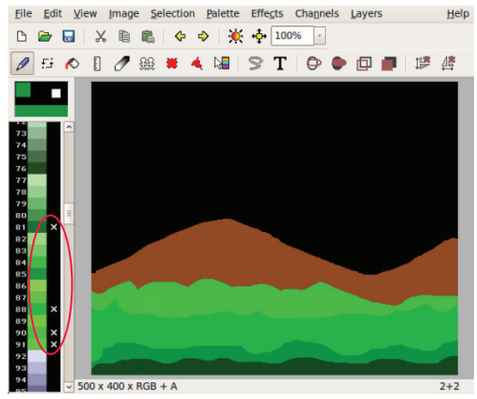
b. What will happen if 'Aspect Ratio' is not fixed in the scale canvas sub menu, comment after you experiment.



7. Paint a Scenery

1. Open a new file in mtPaint with a required size and draw a scenery.
2. While drawing, if you don't want colours to overlap, you can protect the colours. For this, left click on the area to the right of the selected colours in the palette.(See the picture given).
3. Now scribble a new colour across the canvas, notice that the strokes are not visible on the protected colours.(Remember to undo this step, once you are done!).
4. Apply gradient:

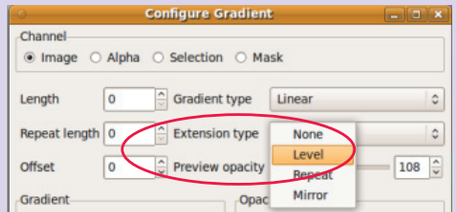
Hint: use the skill box given below for applying gradient.

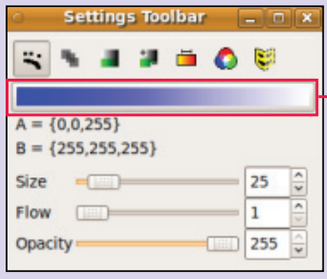


Skill

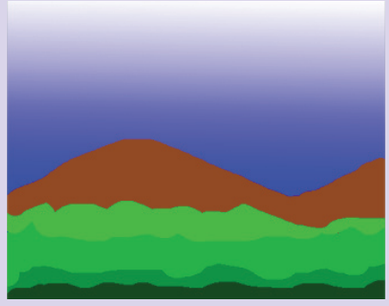
To apply gradient

1. First select the 2 colours you wish to use at either end of the gradient. Left click on colour A and right click on colour B. At the gradient start point, you will have colour A and it gradually changes to colour B at the end point.
2. Right click on the gradient placement tool to configure the gradient. To extend the gradient beyond its end points, choose the 'Extension type' as 'Level'.
3. Choose the gradient placement tool from the toolbar.
4. Left click at gradient start point, drag and again left click at the gradient end point.
5. Move the start and end points till you are satisfied. To paint the gradient, press F7 to bring up the settings toolbar, click gradient bar and switch to gradient mode.
6. Now press Ctrl+A, and then click the "Fill Selection" icon on the toolbar which will paint the gradient on the canvas.





Gradient bar





1. Apart from using the crop toolbar option, is there an alternate way to crop any image?
2. Explore the difference between 'Resize Canvas' and 'Scale Canvas' options.

Teacher's Corner

- The objective of this lesson is to teach students about image editing and options associated with it. This is done with an example of creating a collage using photographs.
- Begin the class by asking students if they want to make changes to an existing photograph. They are likely to come with interesting suggestions such as adding some features, changing colours, etc. Tell them that this topic will teach them how to do this using a computer application.
- Explain the concept of image editing. Inform the students about various image editing software. Tell them that we will use mtPaint and explore its features.
- You can do an activity of picture story, where you bring pictures of some event and ask students to arrange them in a sequence. Now ask them to select the images they would want to include in their collage. For picture story, you can select an event that the class has participated in such as wild life club, math lab, school annual day program of last year.
- Give a demonstration of the different options included in the lesson such as cropping, resizing, adding text and shape, resolution, adding effects such as smudge. Allow students to explore how an image becomes pixelated. Explain the concept of pixels. Emphasize that students understand the suitability of applying particular options to the image, rather than applying anything and everything just for the sake of novelty.
- Students already know about the different file formats for images. Revise this and explain the difference between GIF and JPG file formats.
- Inform the students about image view and give a demonstration.
- Summarise the lesson and ask students to do Activity 3 and 4 included in the lesson. In the next practical class, instruct students to do activity 7. Activity 1, 2, 5 and 6 can be given as homework. If possible give enough time in lab session to do as many activities in class. All worksheet questions can also be given as homework.
- Many activities in this chapter provide opportunity for students to be creative. There is no single right or wrong answer.

Further Reading:
http://www.ischool.utexas.edu/technology/tutorials/graphics/digital/
http://pyrestriker.deviantart.com/art/mtpaint-Tutorial-106687408

Notes:

4

Presentation



Advanced Presentation: Digital story telling

Aim: In this lesson, you will learn:

- To create a digital story using presentation application.
- To insert sound and image files from varied sources into the presentation.
- To print slides.

Tejas and Jyoti are asked to make presentations on topics of their choice.

Moz: Why not create a digital story?

Tejas: What is a digital story?

Moz: A digital story is a short, first person video-narrative. It is created by combining recorded voices, still and moving images, and music or other sounds.

Jyoti: What is it used for?

Moz: It can be used to document life experiences, ideas or feelings, through the use of story and digital media.

Jyoti and Tejas: That sounds interesting. We will make a digital story using presentation application.

Jyoti and Tejas start discussing what story they want to tell. They decide to make a presentation on their visit to a bird sanctuary.



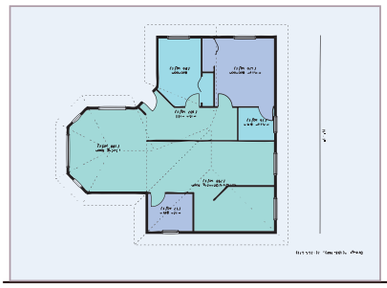
Jyoti: We should make notes for our story. This will help in creating an outline of our presentation.

Tejas: Let us list down what are the steps of digital story telling. 1 Gathering Info

Jyoti: Let us revise the different steps of making presentation that we learnt last year.

1 Apply step wise gathering of information to collect content for presentation. This involves: list what you know, what you do not know, identify appropriate resources, collect, record and consolidate the information.

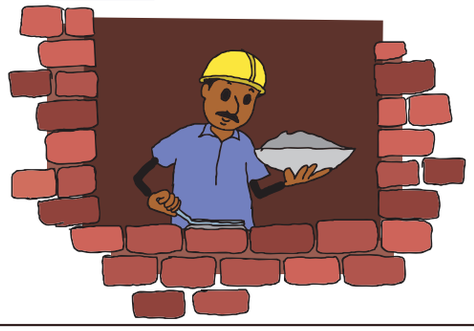
Stage 1 Plan:
Decide an outline for the presentation.



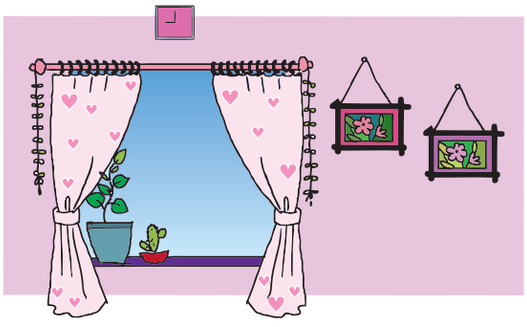
1. Gather information for the given topic and choose an appropriate title for the presentation.
2. Go through the information that you have collected. Group related information and list the main points you want to present.
3. For each main point list its sub-points.

Stage 2 Execute:
Create the slides.

1. Open a presentation application and create a new presentation. The title of the outline becomes the title of the presentation.
2. Create a new slide for each main point in the outline. Add list of sub-points for the respective main points. Expand each sub-point by adding more information like text, images, graphs or tables.



Stage 3 Impress:
Verify content, add visual effects and practice



1. Check the following:
 a. Order of slides has a logical flow.
 b. Sub-points are correctly placed.
 c. Information is accurate, adequate and follows AWARE rules. (1) AWARE
 d. Spellings and grammar are correct.
2. Add visual effects by ensuring:
 a. Font type and Font size are easy to read and alignment is uniform.
 b. Use of colours to highlight important points.
3. Add animation, slide transition effects wherever appropriate.

Tejas: We need to apply the first stage for creating our presentation so that we have the outline ready.

Jyoti: This means we also need to collect all the information, including pictures, for the presentation.

Jyoti: I found some pictures of birds from picture books. How can we use these in my presentation?

Tejas: We can scan these pictures and insert the image file into the presentation. (2) Images

Jyoti: We could draw pictures on the computer using a paint application.

Tejas: I clicked some photographs of our visit using a digicam. I will transfer these files onto the computer and insert them in the presentation.

Moz: I see that you have come up with different sources for image files.

(1) Follow AWARE rules to select information from various resources (Check AWARE poster at the end of the lesson).

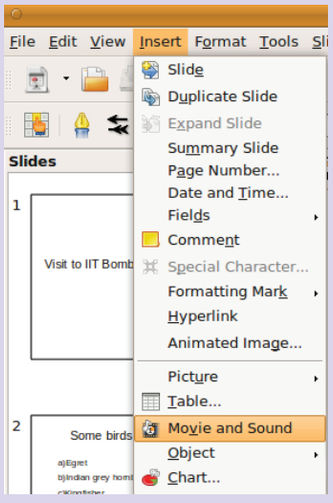
(2) Use images in a presentation to catch the attention of the audience.

Jyoti: Just as we can insert image files, can we also include sound files?
Moz: Yes, depending on the context of your story, sound files can be selected.
Tejas: How about inserting voices of birds into the story? That will be interesting.
Jyoti: We recorded bird voices during our visit using a mobile phone. We can transfer the sound files from the mobile phone.
Moz: Photographs and audio files captured using a mobile phone need to be transferred onto the computer. This requires connecting the mobile phone to the computer.

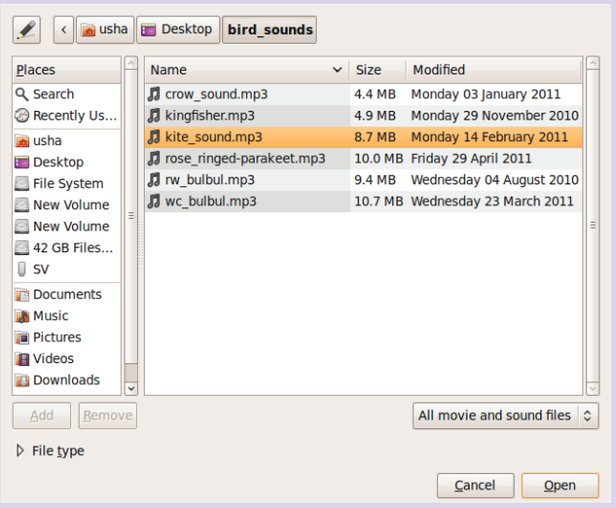
Skill

Inserting sound in the presentation

1. Select 'Movie and Sound' under the menu bar option -'Insert'.



2. From the pop up window, browse and select the required file. Click 'Open' button to insert the file.



3. The sound file is inserted and the sound icon () appears on the slide.

Info

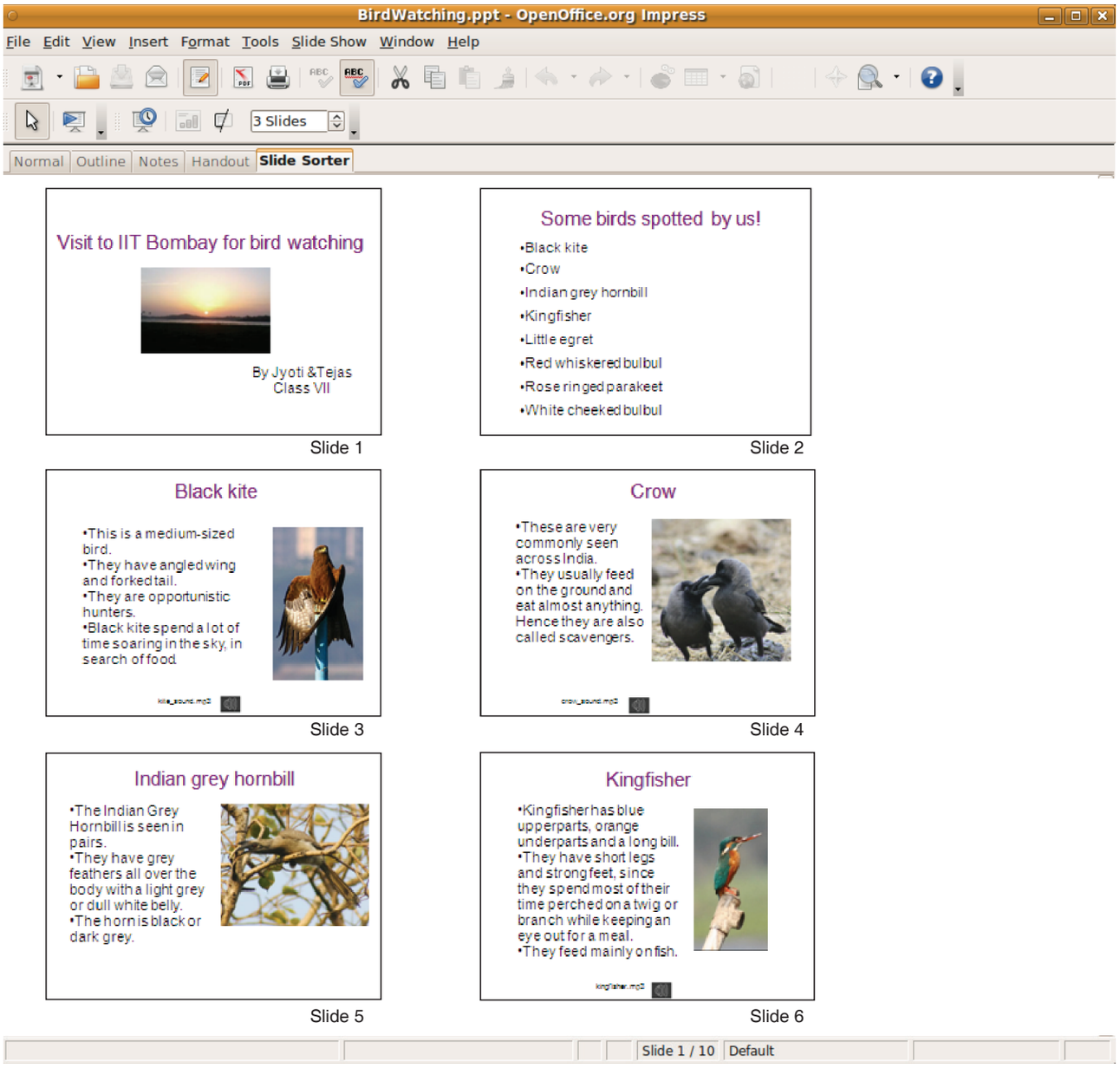
Different sources of image and sound files

- In presentations, images from varied sources can be included. This includes :
 - Pictures drawn using paint application.
 - Photographs already stored on the computer.
 - Photographs clicked using a webcam.
 - Scanned pictures.
 - Files transferred from a digital camera onto the computer.
 - Images from the Internet.
- To transfer images from a digital camera or a mobile, connect the device to the computer. In most cases, an application called Wizard, will pop up. This wizard will give you option boxes that will take you through the process of transferring the files onto the computer. Once the soft copy of the required image is available on the computer, the file can be imported into the presentation.
- Similarly, sounds from varied sources can be included. The different sources include
 - Recordings using a camcorder/digicam.
 - Recording from microphone connected to the computer.
 - Music files already stored on the computer.
 - Sound files from the Internet.

Tejas: Let us have one slide for a bird that we spotted. For each slide let us add the photograph and the sound file of the respective bird.
Jyoti: Let us also add our observation and information about the birds.

Tejas: Now, we have all the content inserted into the slides. With this, we have completed the second stage of the presentation.
Jyoti: Now, let us move to the next stage and apply animation effects to make our presentation more impressive.
Jyoti: We have used custom animation to bring in various effects on the slide.
Tejas: We remember that applying too many varied animations are distracting. So, we kept uniformity in the animation selected across slides.
Moz: I am happy that you are able to apply previous knowledge in the present task. I see that you are now becoming independent and have learnt to learn on your own.

Here is a snapshot of the digital story prepared by Tejas and Jyoti. Slides consist of bird images, text and sound files images.



Jyoti: The slide sorter view allows us to see all the slides at a glance.
Moz: Slide sorter view helps us to take another look at the flow of the presentation.

Tejas: Along with each slide, we have many things to say on each slide. It is difficult to remember all the points. Is there a way of noting points about each slide?
Moz: You could use slide notes to keep track of what you are going to do for each slide.

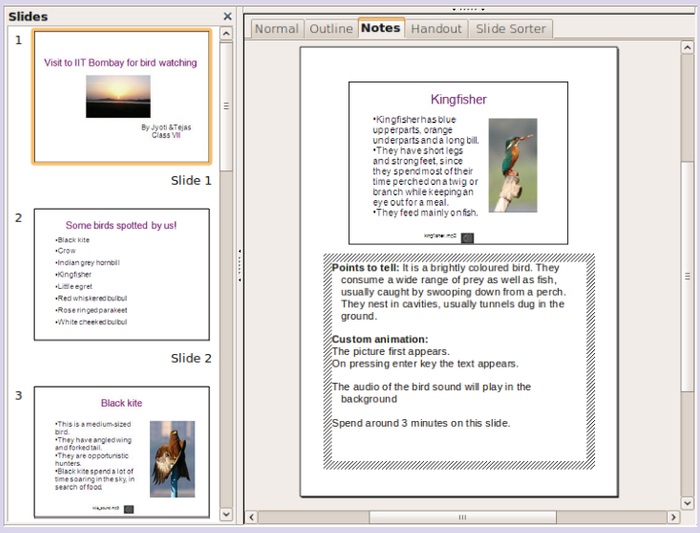
Skill

Notes page view

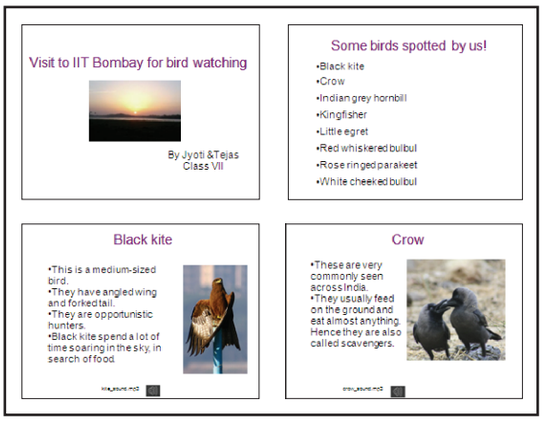
Notes can be written along with the slides. These can be of two types:

- Notes or pointers to yourself while you give your presentation
- Notes that are intended for your audience. These can be printed and handed out during your presentation.

In the notes page view, you can view the slide along with the notes.



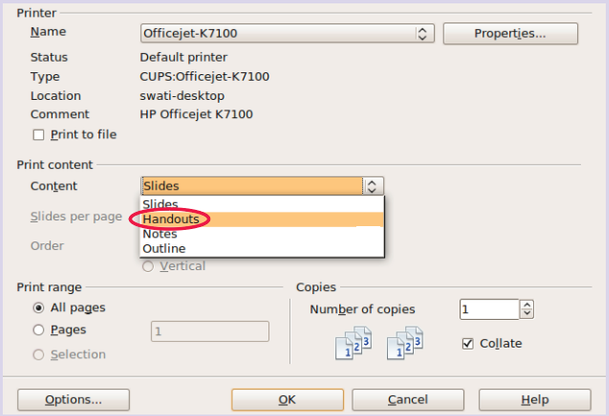
Jyoti: We are almost ready. As we have learnt earlier, let us give a mock presentation to check if we are able to complete our digital story within the given time.
Moz: You can also get a print out of your presentation in the handout mode. You can print multiple slides per page and refer to it while presenting.
Tejas: We can also distribute these handouts to the audience during presentation.
Jyoti: That is a good idea.



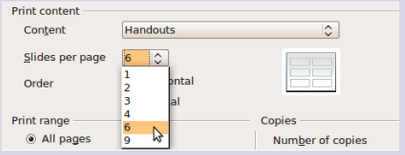
Skill

Print slides

1. To print the handout view, follow the path:
 File ---> Print. Alternatively, Press Ctrl+P.
2. In the pop up window select 'Handout' mode.



3. Select the number of slides desired per page and click OK.



Moz: You also need to ensure that the computer which is used during presentation recognizes and plays the image and sound files.

Info

Common file formats

Select common file types for audio, video and image files. Some of the widely recognized file extensions for these are .mp3, .avi and .jpg respectively.

Guidelines

Steps of creating digital story

The steps for creating digital story follow the three stages of the presentation.
These steps are as follows:

Stage 1

- Create an outline of the presentation.
- Collect picture and sound files to be included in the story.

Stage 2

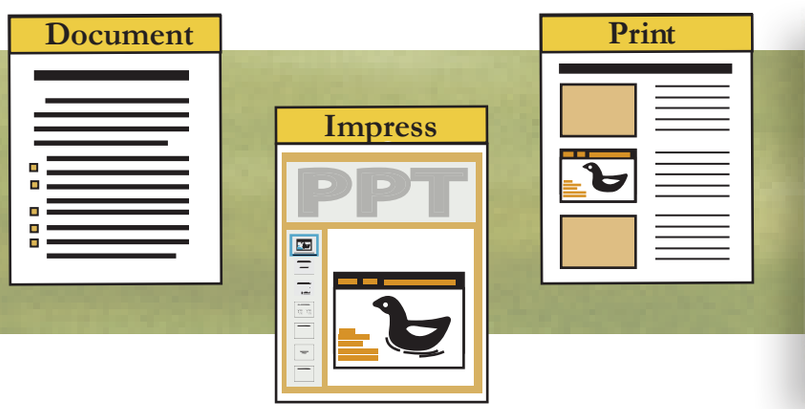
- Populate collected content into the slides.
- Import and arrange pictures, add titles to pictures.
- Import sound files into the presentation

Stage 3

- Add custom animation to make the presentation more impressive
- Add background music if required.

 After the presentation is ready;
 - Save the story.
 - Give mock presentation.

Tejas: Now let us take backup of our presentation. We can either write a CD or copy it on a pen drive.
Jyoti: This file has become so bulky due to image and sound files that we cannot send it as attachment via e-mail.
Moz: We will soon learn another way of sharing bulky files on the Internet.
Tejas and Jyoti: Thanks Moz, we will look forward to it.
Moz: Chin Chinaki...



Learning Outcome

At the end of this lesson, you will be able to:

- Recall and apply the three stages of creating presentations.
- Transfer multimedia (audio/video/image) files from external devices (e.g. mobile phone/digicam) to the computer and import these into the presentation.
- Use various slide views such as notes/slide sorter/handouts appropriately.
- Print slides.

WORKSHEETS



1. Some steps in the three stages of making a presentation are given below in a jumbled order. Arrange them properly.

- Check for spellings and grammar.
- Create a new slide for each main point in the outline. For each main point, list its sub-points.
- Gather information for the given topic and choose an appropriate title for the presentation.
- Check if information is accurate, adequate and follows AWARE rules.
- Group related information and list the main points you want to present.
- Save the presentation file created by giving a file name.
- Check if order of slides has a logical flow and also if sub-points are correctly placed.
- Title of the outline becomes the title of the presentation.

STAGE 1: Plan: Deciding an outline for the presentation.

STAGE 2: Execute: Creating the Slides.

STAGE 3: Impress: Verify content, add visual effects and practice.

2. Given below are some scenarios. Identify which AWARE rule is applicable and whether the rule is followed or violated.

a. Rahul is making a presentation on 'UFO: A reality or fantasy'. He searched the Internet and found an interesting article. He read it, wrote a summary of it in his presentation.

b. A poster on the ' Healthy usage of computers' is to be made. Riya found some nice photos in a website. She used them in her poster.



c. Ameya and his friends are making a digital story on 'Setting up of a botanical garden in the school'. For this, they went on a field trip and took photos and used them in the story.

3. Match the various slide views in a presentation with their respective functions.

1. Notes page	To view and print more than one slide in a page.
2. Slide sorter	To view notes or pointers to yourself while giving presentation.
3. Handouts	To view the main and sub-points in a presentation.
4. Outline	To view all the slides at a glance.

4. Which of the following could be sources of image files for a presentation?

- ☐ a. Digital camera
- ☐ b. Videos from websites
- ☐ c. Scanned photographs
- ☐ d. Pictures you draw using mtPaint

5. Rahul is creating a talk on 'Changes in matter' for his class. The resources available with him are:

- **A video explaining physical and chemical changes, with examples.**
- **Two posters, one on physical changes and another on chemical changes.**

For the slide on physical and chemical properties, he has listed down steps on how to present the slide but not in the proper order. Rearrange the steps in proper order. (Multiple correct answers possible.)

- Show the Poster and explain chemical changes.
- Properties: Physical attributes such as shape, size, colour and state of a substance are called its properties. A change in which a substance undergoes a change in its physical properties is called a physical change. A physical change is generally reversible.
- Narration: A change in which one or more new substances are formed is called as chemical change. A chemical change is also called as a chemical reaction.
- Play the video and reinforce what was narrated.
- Show the Poster and explain physical changes.

6. The recall icon in this lesson indicates a few places where concepts from previous levels are being applied.

a. Identify one more connect box in the lesson and justify your answer.



ACTIVITY

1. **Use presentation application to make a digital story as explained in the lesson. Create the digital story on one of the following topics:**
 a. Awareness about Internet safety measures.
 b. Should students be given an option of dropping out of studies?
 c. Asanas.

 Hint: interview students, insert video/audio clippings

2. **Create a poster:**

a. A poster is an informative way to attract attention to the information it contains. It is generally put up on a wall to display instructions or information.

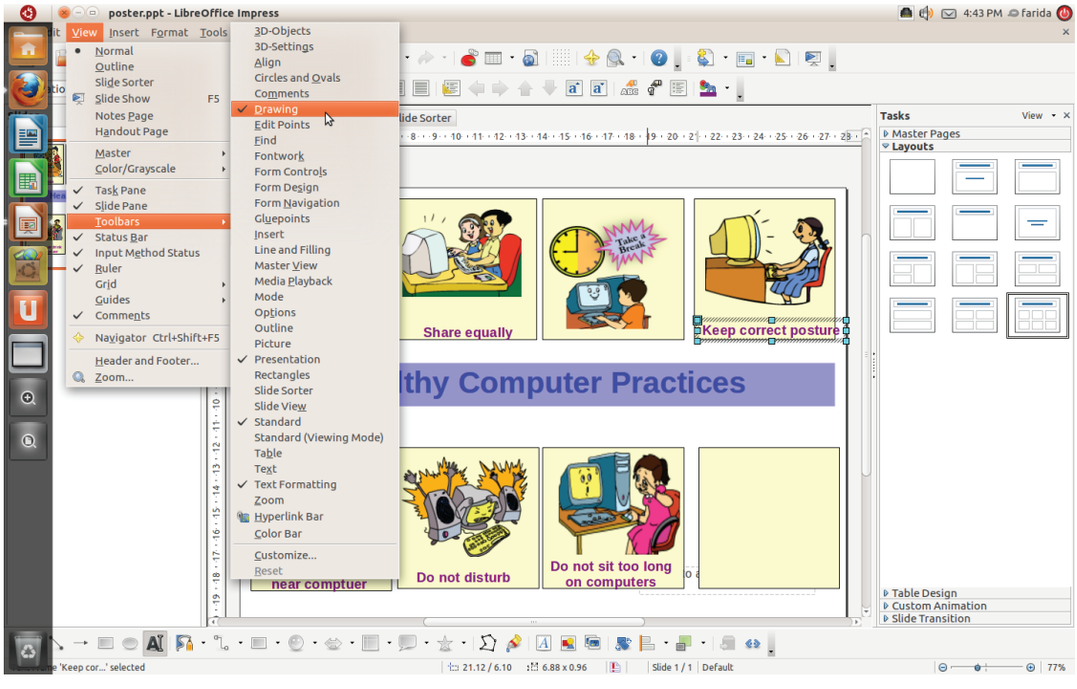
Use presentation application to create a poster on any one of the following topics:

- Human digestive system. Label and give a brief description of each part.
- The different types of reproduction in plants.
- The various mirrors and lens along with their characteristics.
- Methods of water conservation.

b. Create a poster on healthy computer practices that can be used as teaching aid for the class.

What you need to know?

- Size of the poster - this helps us decide the page width we need to select for our slide. (Hint: Change the page size in presentation and select layout)
- Pictures in the poster - this will help us select an appropriate layout for the slides.
- Layout of the poster *(Hint: use draw tool option, select appropriate shapes, insert boxes to add text/picutres inside the box. After a single box is drawn, we can copy it and paste several times to get all the boxes we require. This will ensure that all boxes are of same sizes. Use Text tool to insert the titles for each picture. Use the format options to change the colour of the boxes and text.)*





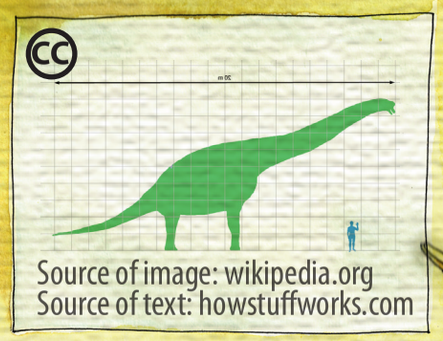
ACTIVITY



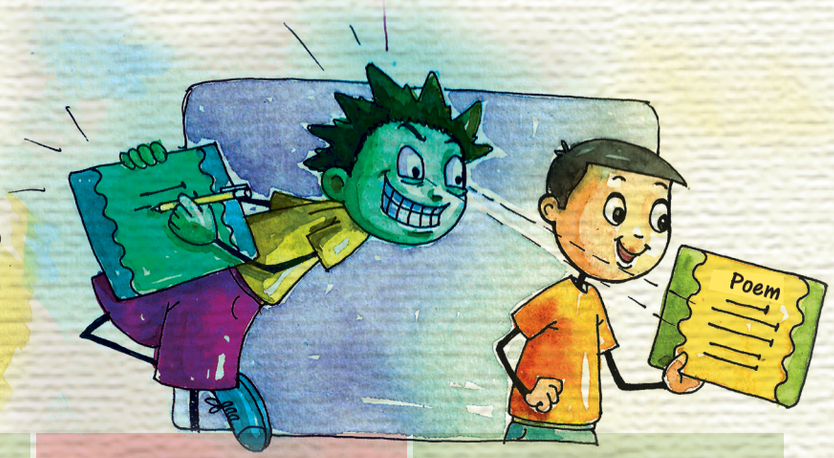


1. How to insert tables and graphs into presentation.
2. Use slide master to change features of all the slides.









A W A R E

AWARENESS about Copyright

- A lot of content is under 'Copyright' indicated by ©. This means that the content cannot be copied or reused without permission from the copyright owner. The content could be images, text, audio, video, applications, operating system.
- Check for copyright before using any content from any source.

WATCH for CC

(Creative Commons license)

- CC license allows people to share and build upon each others' work. This is indicated by CC.
- Refer and prefer CC material.

Acknowledge source of information

- If you use content from other sources, always acknowledge the sources. Not doing so is plagiarism. If you have to use copyright content, ensure that --- you use it for educational purposes and take permission from the copyright owner.

Reject Plagiarism

- Word to word copying parts of someone else's work and presenting it as your own is called plagiarism. It is unethical as it takes away the effort of the other person.

Explain in your own words

- Content taken from different sources need to be explained in your words. This can be done with paraphrasing.

A fun way to learn computers
ComputerMasti
www.computermasti.com

Apply glue in the circles given
and paste this poster near
your computer.

ComputerMasti

Teacher's Corner

Level VII

Lesson 4

- The objective of this lesson is to educate students about advanced features of presentation software. This is done with an example of creating a digital story about visit to bird sanctuary.
- Begin the lesson by asking students to describe what would they observe in a visit to bird sanctuary. If possible, you can actually arrange an educational trip to a bird sanctuary. List the points on the board. Now tell them that if they are asked to prepare a presentation about it, how they would apply the three stages of creating presentations. Use this opportunity to revise previous knowledge. Refer to the points along with house building analogy for the three stages. You can also revise the AWARE rules for responsible use of Internet resources while creating the presentation. At this point of time, you can ask the students to do worksheet questions 1 and 2.
- Tell the students that they will learn how to make their presentations more interesting by adding sounds, video and audio. Mention that they would also learn how to transfer data from external sources. You can ask them what could be the alternate sources by which they can capture audio, images and video. Common responses of students would be mobile phone or camera. Inform the students that they can transfer the images and videos as files onto a computer. Teach them about different file extensions for audio and video files. Emphasize the importance of selecting common/popular file formats to ensure that the file opens on different computers. You can refer the info box about the same for further details.
- Demonstrate how to insert a sound file into the presentation. Refer the skill box for the steps. Emphasize that it is important to understand the requirement of a sound file before including the sound file. Inform the students, that similar steps would be followed to insert video files. Use this opportunity to revise inserting pictures into the presentation. If required, demonstrate this as well. You can get one of the students to do this for the class.
- Ask students how they would prepare for giving the presentation. Some students may say they would practice, some would say, prepare notes. Tell them that a feature of presentation would allow them to do it easily. Demonstrate the use of notes page view. Refer the skill box for this.
- Ask students to explore how they can view all the slides at a glance. You can give hints on where to look for the icon. Demonstrate the use of slide sorter view to the class.
- Teach the students how to print the slides. Inform them about the different views and number of slides they can print on each page. Now, you can ask the students to do worksheet questions 3, 4 and 5.
- Summarise the lesson by repeating the three stages of presentation. Instruct the students to do activity 1. Next, instruct students to do activity 2. You may have to demonstrate a poster creation with presentation to the class. Note that the page margin can be set for the slides, according to the size of the poster. Allow students to select a topic of their choice and prepare a poster.

Further Reading:

http://www.bedford.k12.va.us/fms/lessons/
http://www.techsoup.org/learningcenter/techplan/page5897.cfm
http://electronicportfolios.com/digistory/howto.html
http://digitalstorytelling.coe.uh.edu/

5 Word Processor: Designing Ephemera

Aim: In this lesson, you will learn:

- To use advanced features of word processing applications.
- How to create invitation card and newsletter.



Tejas and Jyoti: What is Ephemera?

Moz: The word Ephemera is derived from a Greek letter. It can be described as a transitory written and printed matter, like letters, invitation card, greeting card and advertisement.

Make an invitation

Tejas: My birthday is coming up. I want to invite all my friends to the party.

Jyoti: We want to make an attractive invitation using the Word Processor application. We have created a file and named it as *partyinvitation*.

Moz: I see that you have started typing in the contents of the invitation. You have to first plan the content and then its looks. An invitation is different from a letter. You can insert pictures and use different colours to make it attractive. You can also change the text alignment and formatting.

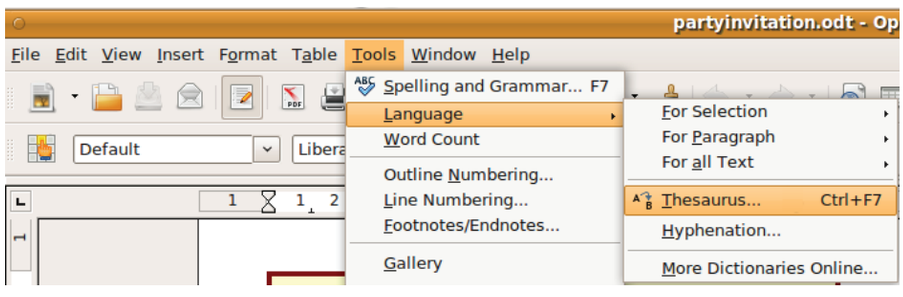
Thinking Process Skills

Jyoti (finishing typing the content): Done! The content of the invitation is ready. Now we have to format it.

Moz: Before formatting, make sure that there aren't any spelling mistakes (also called typos) in the content. What will you do for this?

Jyoti: We can check the spelling using the spellcheck option () which is available.

Moz: There is also a Thesaurus available along with the word processor application which can help you to find synonyms of words.



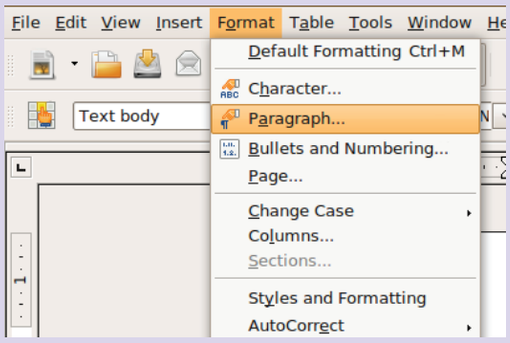
Application of thinking process skills is important for planning any activity. For example, apply step wise thinking, logical reasoning and systematic gathering of information, to select content and design layout for the greeting card and the newsletter.

Tejas: Under the format menu on the menu bar, I have noticed an option 'Paragraph'. We can use this to format the paragraph.

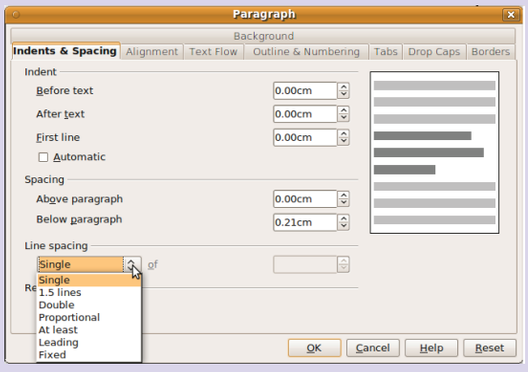
Skill

Format a paragraph

1. To format the paragraphs, go to 'Format' tab on the menu bar and select 'Paragraph' under it.



2. When you click on this option, a pop up window is displayed. Options to format: line spacing, indentation, bullets and borders, are available. You can even give a background colour to your paragraph.

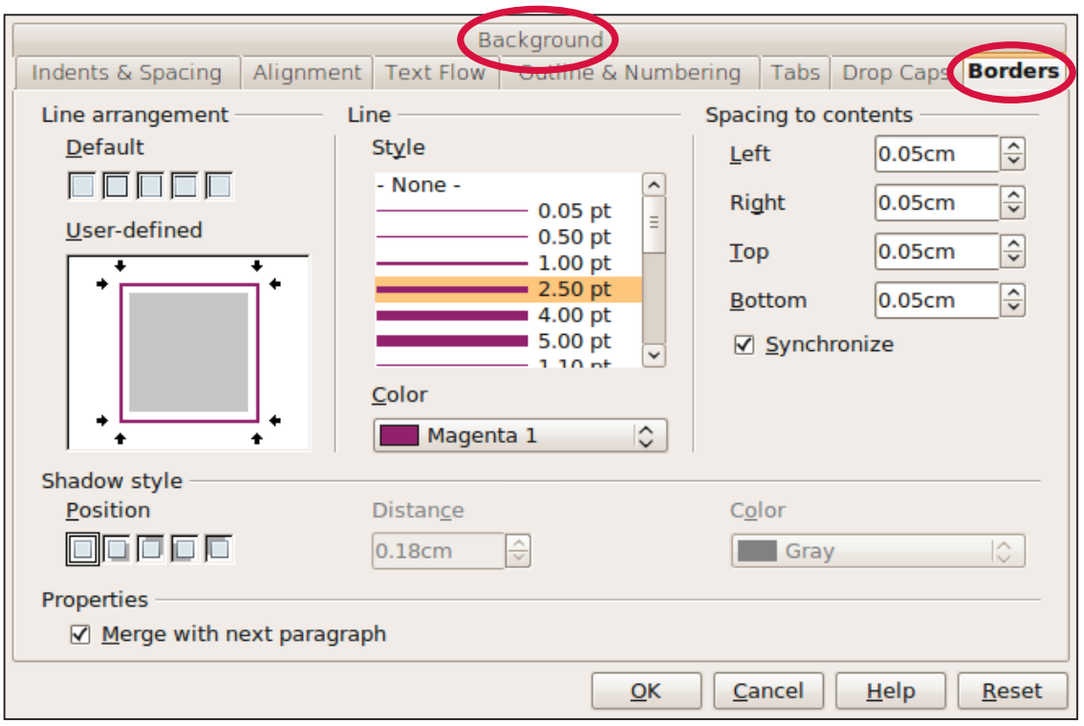


Tejas: See how we have formatted the text. We aligned the text of the paragraph to the center. We have used single line spacing. We have applied Font style, Font size and Font colour so that the text catches the attention of the reader. 1 Font formats

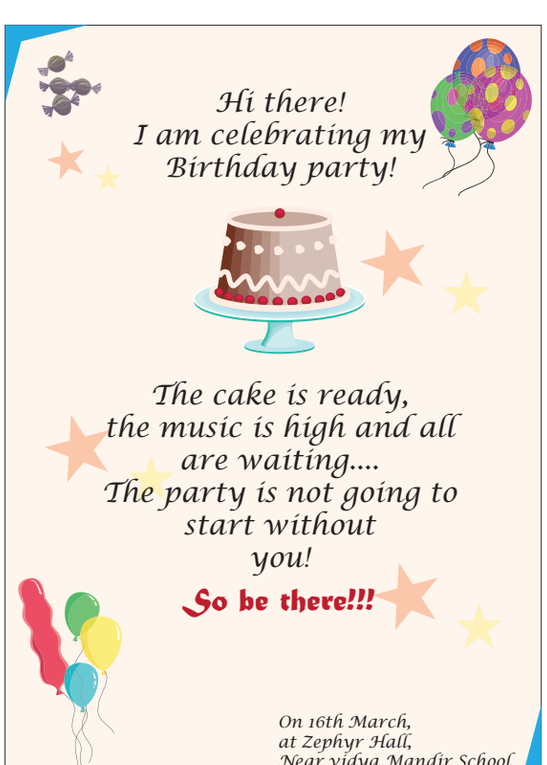
Hi there!
I am celebrating
my Birthday party!
The cake is ready,
the music is high and all
are waiting....
The party is not going to
start without
you!
So be there!!!

Jyoti: We selected a border and background to the paragraph.

1 Choose a Font type and size that is easy to read. Be consistent in the style and colour of the Font. Using too many and too varied Font characteristics may confuse the reader.



Tejas: We used some pictures to make the invitation more attractive. We used the option 'fontwork' (found in the Drawing toolbar ).



Moz: Your invitation looks nice. You have used various options like alignment, line spacing, borders and background to format it. You also have used your imagination to make the invitation catchy.

Create a Newsletter

Tejas: Our teacher was talking about creating a newsletter.
Moz: Do you know what a newsletter is?
Tejas: A newsletter is a printed report or letter meant for a specific group of people. It contains news and events which are of interest to the group. For example, newsletters are given out at schools to inform parents, teachers and students about the things happening in school.

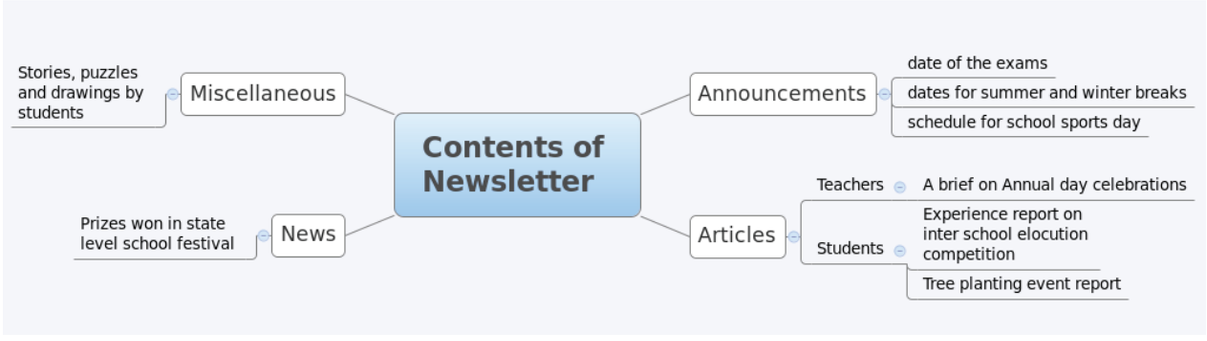
Jyoti: The teacher said that the newsletter can include: articles written by the students and teachers, some news items on what is happening in the school, some announcements and some general information.
Moz: While preparing the newsletter you have to first decide the content to be presented.

1 Analyze and Decide an Outline

Jyoti: We can create a mind map on the topics to be included in this edition of the newsletter.

2 Synthesis of data using Mind maps

Tejas: My friend had participated in the inter school elocution competition. I can ask him to write an article about his experience at the competition. There are also some announcements about the date of the exams, dates for summer and winter breaks and schedule for school sports day.
Jyoti: Our class had participated in the tree planting event organized by our school. I can write an article on that. Our school also participated in the state level school festival. Many students from our school had won prizes and we also won the over-all trophy in this event.



Jyoti: We also have to decide upon the format and design of the newsletter. It should look attractive as the first impression is very important to make people read it.
Tejas: Let us prepare the newsletter design.
Moz: You also should decide the number of pages for your newsletter.
Jyoti: I think a four page newsletter will be ideal. It can include all the articles contributed by the students and teachers.
Tejas: We need to decide upon the title of our newsletter, fonts to be used with various formats and how the contents are to be placed.
Jyoti: In newspapers, I have seen that the content is neatly arranged in columns. We can also adopt a similar format. The title of each topic needs to be prominent from the rest of the text. The author name also needs to be included. We can use italics for author name.
Jyoti: To make the title text prominent, we can use options like bold, increasing the text size and using a different Font colour.

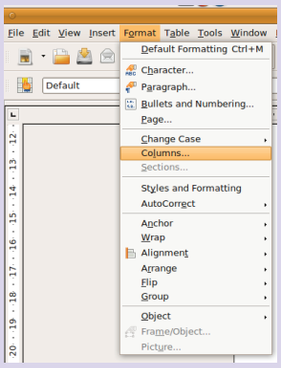
1 To create an outline: a) gather and consolidate information from appropriate resources, b) apply decision making skills to select information.
2 Gathered information needs to be categorised and analysed. Use mind map for visual representation of information.

Moz: Now try and create a sample layout of your newsletter with some dummy text. When the actual content is ready, you can replace the dummy text with the content.

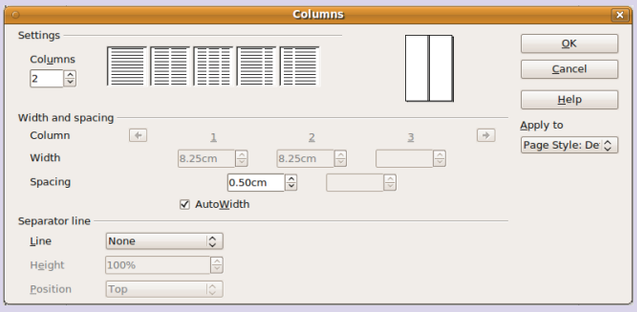
Skill

Format the text or paragraphs in column format

1. Select the menu bar option 'Format'. Under this, select the columns option.



2. In the displayed window, select the number of columns needed and the spacing between these columns.

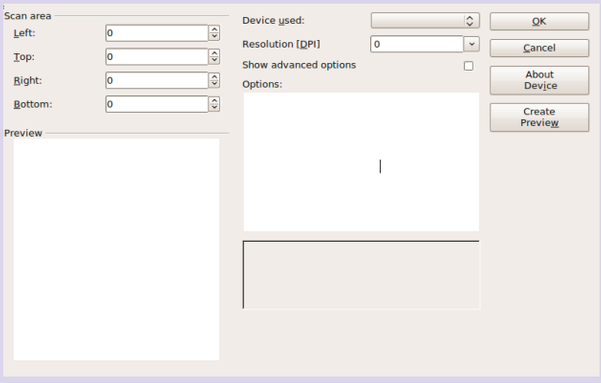


Tejas: Including pictures in the newsletter can capture the reader's attention.
Jyoti: Some of my friends draw and paint very well. We can also include some of these pictures in the newsletter, by scanning the pictures and inserting them appropriately.

Skill

To insert a scanned picture

1. Go to menu bar option 'Insert', then select: Picture ---> Scan ---> Select Source.



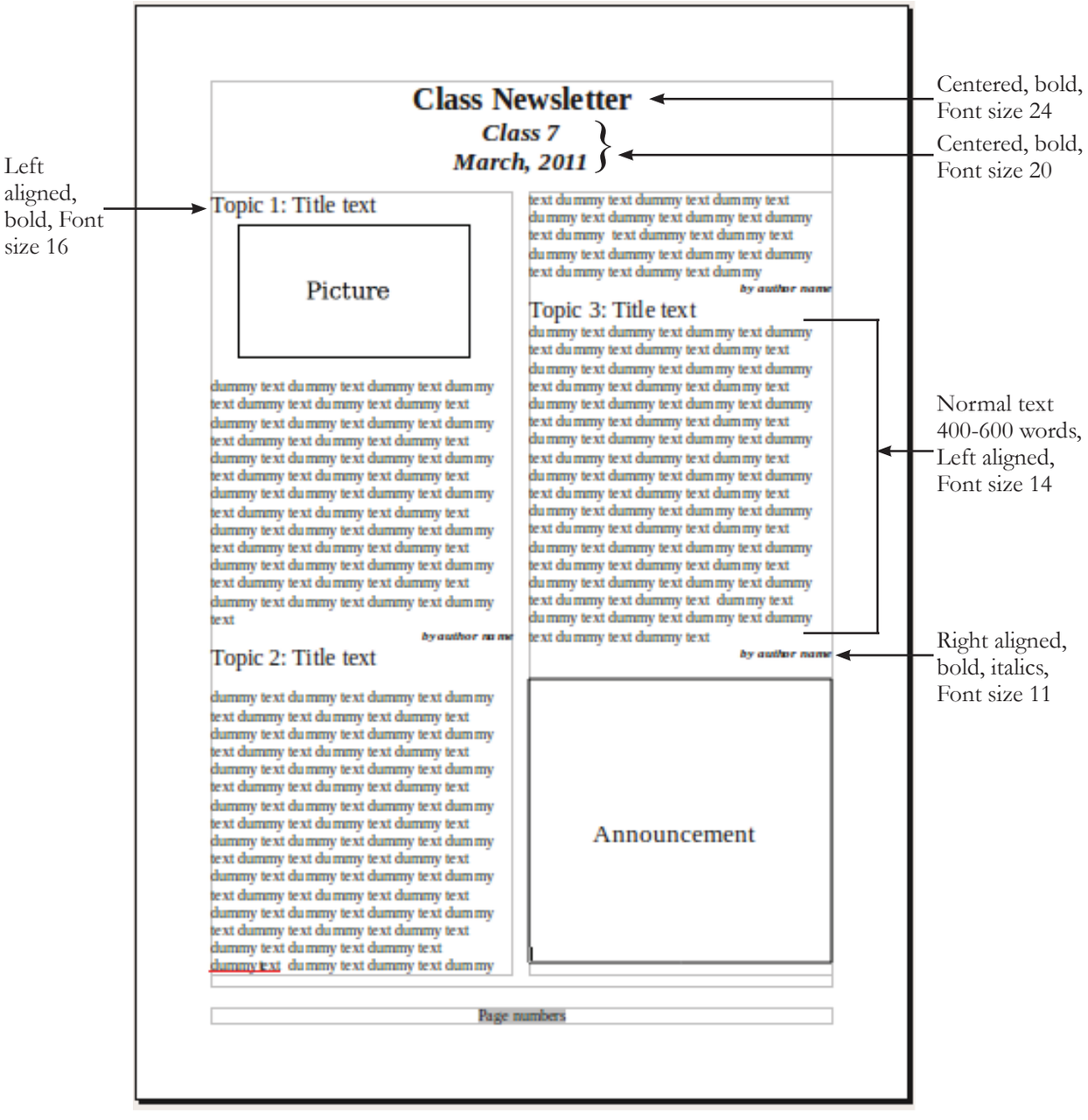
2. In the displayed area, select the scan area and click OK.
3. The picture is scanned and inserted into the file.

Tejas and Jyoti open the word processing application. They are busy creating the sample newsletter.

Jyoti (finishes formatting the newsletter): We have completed formatting the newsletter. These are the various format options we used:

- Newsletter title text is centered and bold with Font size 24.
- Class and month are also centered and bold with Font size 20.
- Title of each article is left aligned, bold with Font size 16.
- The article text is 'normal' with Font size 14 and aligned to the left. (Normal text is text without any formatting like bold, italics or underline)
- Each article has 400-600 words each.
- All the articles are formatted into two columns.
- The author names are in bold, italics, aligned to the right with Font size 11.

Tejas: Look at our sample newsletter layout. We now only have to replace the dummy text with actual content.

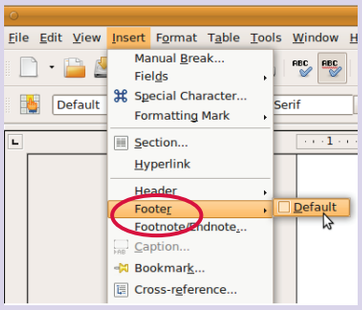


Moz: I see that you have done a good job. You have inserted page numbers also. This helps when your document has many pages.

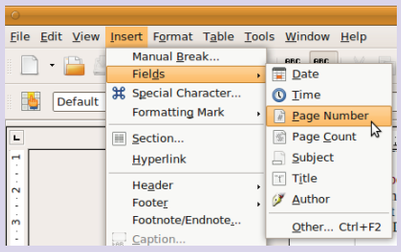
Skill

Inserting page number

1. First, as per your requirement, select header or footer from the 'Insert' menu bar option. Then, select 'Default'.

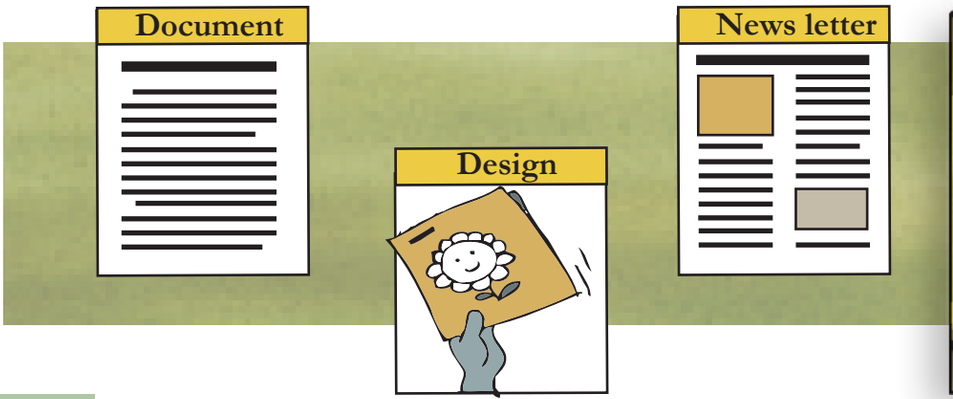


2. Now select 'Insert' menu bar option and follow the path Fields --->Page Number.



3. The page number is inserted in the footer.

Tejas: We will share the *mind map* of the newsletter content and sample layout with our classmates, so that they can start contributing articles for the newsletter.
Moz: Have fun creating the newsletter. Chin Chinaki...
(See next page for sample newsletter.)



Learning Outcome

At the end of this lesson, you will be able to:

- Apply format and Font work options.
- Design a card.
- Select appropriate layout and content for the newsletter.
- Do content check by applying spell check and thesaurus options.

Class Newsletter
Class 7
March, 2012

School annual day celebrations


Principal Mrs. Arora giving the welcome speech

The annual day of our school was celebrated on the 21st of February. It was conducted in the open air theatre. Many students participated in the programmes with lot of enthusiasm.

Our class students also participated in both individual and group events. Mihika and Supriya of our class, participated in individual events. Mihika performed a mono act and Supriya presented traditional manipuri dance. Both the performances were throughly enjoyed by the crowd. We also performed a group dance item. The programmes got over only around midnight. Students had put lot of efforts in compering and presenting the programmes. Let us pat ourselves on our backs.


Folk dance by Supriya

This was the last event that happened this academic year and now exams are round the corner. Then the summer holidays folks!

by Mayur Phatak
VII Class monitor

Inter School State youth Festival

Our school participated in the Inter school festival organized at Mahabaleswar from 5th to 7th February. The minister for cultural affairs inaugurated the function. 15 Students from our school participated in the 3 day event.

Our school students won the first prize in group orchestra. They also won prizes in painting competition and group dance. The students were put up in the Saraswati Mandir school hostel. The students had a nice time interacting with other students who had come from all over Maharashtra.

by Mrs. Pragya
Class teacher

Brain teasers

1. Mary's father has 4 children; three are named Nana, Nene, and Nini. So what is the 4th childs name?
2. What two numbers have the same answer when added together and multiplied together?
3. What's full of holes but still holds water?
4. What flies without wings?
5. How many letters are in the alphabet?

by Sushil Yadav

Birthdays this month!

6.	Priyanka Nair	3rd March
7.	Rahul Malhothra	12th March
8.	Manoj Ranjan	29th March

Announcements

A basket ball match between class 7 and class 8 is scheduled on 31st March, at 9.30am .





A summer skating camp for beginners is being organized by Vidya Mandir school at the school grounds from 7th to 22nd May, Monday to Saturday. Students above the age of 10 years can participate. The fee for the camp is ₹ 600.

Answers: Brain teasers:
1) Mary 2) 0,2 3) Sponge 4) Time 5) 'the alphabet'-11

WORKSHEETS

1. **Rahul is writing a report using word processor application. He wants to find an alternate word for "facility". Which utility can he use?**
 Thesaurus
 Spelling and grammar
 Footnotes

2. **Identify the formatting options and match the following:**

Word Processor	Italics
Word Processor	Highlighting
Word processor	Bold
Word Processor	Underline
Word Processor	Font Colour

3. **Mark the following statements True or False.**

 a. To draw geometrical shapes in your documents, you have to use the formatting toolbar. — True / False

 b. You can check for spelling mistakes in documents typed in word processor application. — True / False

 c. You cannot insert any text or fields in the header or footer of a document. — True / False

 d. To highlight a text in a paragraph, you can use a different Font colour. — True / False

4. **Following is a puzzle with the title, author and the name of the book from where it was taken. Underline the words that have spelling error. In addition, answer the questions that follow.**

 Title: The Idler and the Devil
 Author: Boris A. Kordemsky
 Book: The Moscow Puzzles

 An idler sighed: "Everione says, 'We don't need idlers. You are always in the way. Go to the devil!' But will the devil tell me to get reach?"
 No sooner did the idler say this than the devil himself stood in front of him. "Well," said the devil," the work I have for you is light, and you will get rich. Do you see the brije? Just walk accross and I will double the money you have now. In fact, each time you cross I will double your money."



WORKSHEETS



"You don't say!"
"But there is one small thing. Since I am so geners you must give me ₹24 after each crossing." The idler agrid. He crossed the bridge, stopped to coount his money...a miracle! It had dobled. He threw ₹24 to the devil and crossed again.



His money dubled, he paid another ₹24, crossed a third time. Again his money doubled. But now he had only ₹24, and he had to give it all to the devil. The devil laufed and vanished.
The moral: When anyone gives you advise you should think before you act.

Q.1 **How much money did the idler start with?**

a. Suppose you want to make the title prominent. What will you do?
Specify: Font style _____ Font name _____ Font size _____

b. What are the formatting options that your friend should use for the author's name, and Book name?
Specify:
Authors Name: Font style _____ Font name _____ Font size _____
Book Name: Font style _____ Font name _____ Font size _____

c. The first letter of the names of characters are in small case in some places. Is there an option in the *Format* submenu to change the case of the letter?

d. The word 'generous' is misspelled geners in the quiz given above. Specify the option that is used in a word processor to correct the spelling without retyping.

e. What would you do to count the total number of words in the content given above? Explore and find the option available in the word processor.

f. Your friend adds illustrations to the puzzle and the document is of 4 pages now. To stack the pages in correct order, what should your friend do in the soft copy?

5. **The recall icon in this lesson indicates a few places where concepts from previous levels are being applied.**
 a. Identify one more connect box in the lesson and justify your answer.



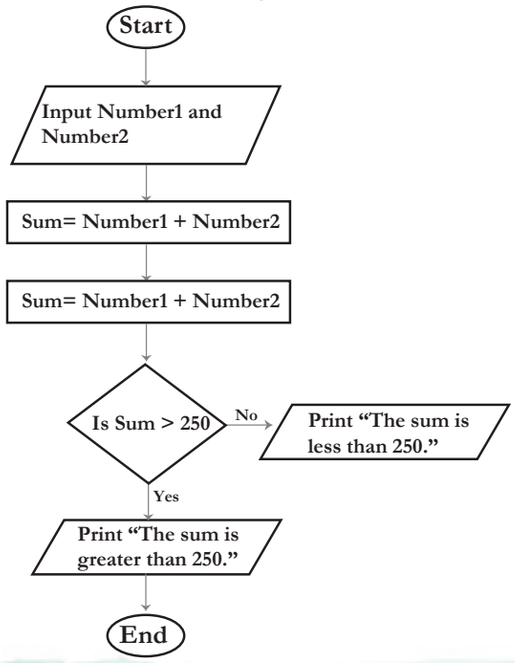
ACTIVITY

1. **Create a newsletter for your class. You can use the newsletter format given in the lesson or design a new one.**
2. **Open word processor application and write a page on one of the following topics:**
 i. How you would like to spend time during vacation
 ii. Favourite hobby you would like to pursue
 iii. A story
 iv. A poem

 You can also draw pictures; scan them and insert it into the document.

 Format it using the following guidelines:
 a. The title should be arial, bold and underlined with Font size 28.
 b. Under the title, give the author name in arial, with Font size 14, in italics.
 c. The paragraph text should be arial, Font size 14, normal.
 d. The paragraphs should be in 2 column format.
 e. If you want some text in the paragraphs to be highlighted, use different font colour or highlighting option.
3. **Draw a flowchart.**
 a. Draw a flowchart to find the tallest student in a group of 5. The heights of the students are 156, 165, 160, 170, 166. All the heights given are in centimeters.
 b. At a level crossing, a train is approaching; draw a flowchart on the procedures the operator has to follow.

 Hint: To draw the geometrical boxes use the option "Flowcharts" on the drawing toolbar.





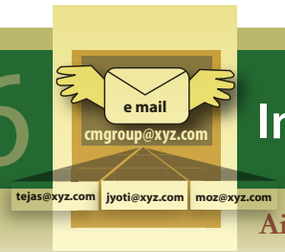
1. How to add comments in a document.
2. How to record changes made in a document.
3. Calculate word count for selected text.

Teacher's Corner

- The objective of this lesson is to teach students advanced features of a word processor. This is done with an example of creating an invitation and a newsletter.
- Begin the class by asking students if they have ever given or received invitation cards. You can bring some sample to the class for students to view. Tell the students that they would learn how to create such cards themselves.
- Ask students to suggest what could be the steps of creating this invitation card. Students already know that instead of rushing to an application, they first need to plan an activity. Emphasize this point. Tell the students to think through what they want to communicate, how they want the invitation to look. Highlight that the technology is powerful, but its power can be really used only if the user is creative and plans her activity well.
- Take an example of creating an invitation letter for a birthday party. Demonstrate the process, including running spell check, applying formatting option to change the line spacing, background, borders. You can show them the use of Drawing tool bar, for the option of Font work.
- Next focus on creating a newsletter. You may have to explain what a newsletter is. If you are able to find a newsletter for young students, bring it to your class. Show it to the students. Ask them to imagine that they have to create such a newsletter. Now observe the different elements of a newsletter and suggest what are the different points you would need to cover and how.
- Ask students to suggest the different news that they would want to cover in their newsletter.
- They may mention about different club activities – maths club/science club or some recently held competitions, or some announcements or some articles and poems. You can draw a mind map as included in the lesson to show the variety of content that is covered in a newsletter. Include the points listed by the students under appropriate headline.
- Now focus on the design of the newsletter. Demonstrate to the students how to select a layout, insert text or image. Use this opportunity to show students how to scan a given image. For instance, students may have photographs of some competition that they may want to insert in the newsletter. In that case, the photograph has to be scanned and the image file created can be inserted into the newsletter. Demonstrate the use of scanner. Tell the students that they need the hardware – scanner, as well as software – scanning application in order to perform this action. Connect to the previous lesson on presentation.
- Ask students to recall the design related guidelines studied in the presentation lesson last year.
- Inform the students about selecting appropriate Font characteristics, setting word limit for different articles and inserting page numbers for the newsletter. You can ask them to explore the option for word count and inserting page numbers. If they are not able to locate them, please give suitable hint and demonstrate thereafter.
- Summarize the lesson by repeating the different steps involved in creating invitation and newsletter. You can ask students to the activity 1 in the class. Activity 2 can be given as homework. For activity 3, do one in the class and give the other as homework. In addition, you can ask students to create an invitation letter for their school annual day. Worksheet questions can be given as homework.

Further Reading:
http://www.enchantedlearning.com/newspaper/
http://www.newentrepreneur.com/Resources/Articles/12_Step_Newsletter/12_step_newsletter.html
http://www.ehow.com/how_4988374_write-school-newsletter.html

6 Internet: Content sharing



Aim: In this lesson, you will learn:

- How to use advanced e-mail features, such as sending to groups.
- How to share content online.



Jyoti: Our computer teacher has given us two tasks, one about email and other about sharing files.

Moz: Let us first look at the email task. What are you supposed to do?

Tejas: Communicate notices to our classmates using email. Explore E-mail application for the following: (1) Communication through e-mail

a. Form a group and save email addresses of all the classmates in the group.
b. Sending email to the group that we created.
c. Checking for spelling mistakes automatically.
d. Using a language other than English in the text of the email.
e. Showing the log of the sent emails to our teacher.
f. Finding settings that we can use to simplify our task.

Task 1: Communicating notices to classmates using email- Exploring advanced email features

Jyoti: In our class we have four houses (lotus, rose, jasmine, and sunflower). When our teacher calls out the house name, then all the students in that house respond. Similarly we want to form a group of email addresses and give it a group title. Now, instead of entering each and every email address we can use the group name to send email to the entire house.

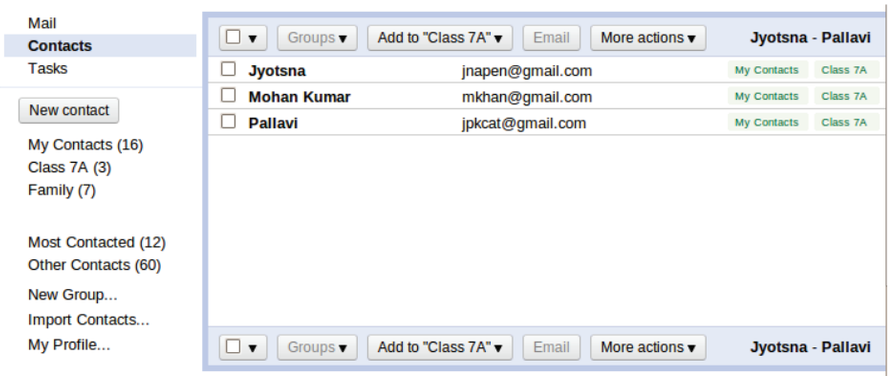
Moz: Good. In which option of the email application do you find email addresses, that you have already saved?

Jyoti: Contacts.

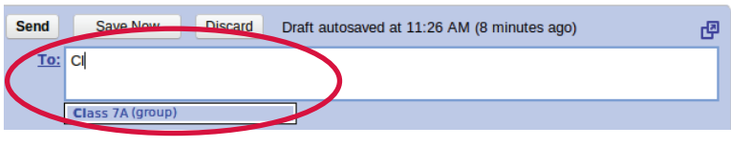
(1) e-mail is an electronic means of communication. In addition to Internet connectivity, one needs a login with e-mail service provider and password to send and receive e-mails.

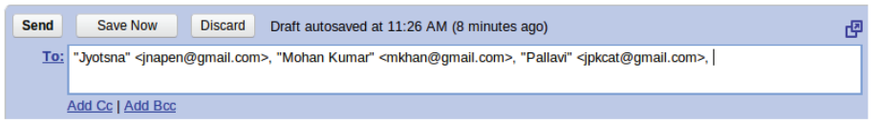
Tejas (explores Contacts option): There are many options in *Contacts*. We can form new groups and also list the groups that have been formed.
Moz: Do the following experiment to familiarize yourself with this option.

- Create a new group.
- Add to the group: new email addresses or select from the addresses existing in the list.



Tejas: Now we have to see how we can send email to the group.
Jyoti (Enters the group name in the "To" field and exclaims): Oh! The email addresses of the group are displayed automatically in the To field.



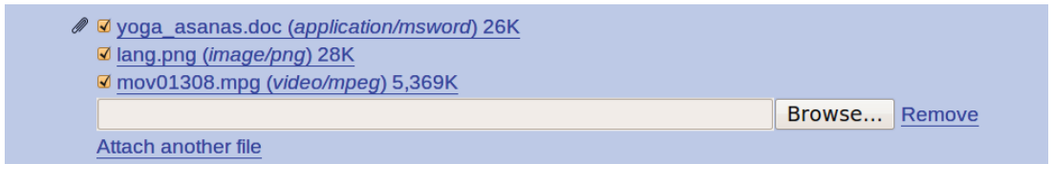


Info

Managing Contacts

- Grouping of email addresses can be done in many email applications. This option is usually available under the *Contacts* option.
- Most used email addresses are sometimes automatically grouped together under a *"Most contacted"* group.
- Contact addresses from other email service providers can also be imported. Each application has its own format in which the email addresses are exported and imported. Check for help of this option in the email application that you are using.
- An option to Print email addresses is also provided.

Moz: Where do you give an indication about the content of the email?
Tejas: In *Subject* we can give a brief title or a brief sentence that indicates the content of the email.
Moz: How do you share files using email?
Jyoti: We can attach files to an email. These can be text, audio or video.



Moz: Good. What are the different ways of sending email to multiple email addresses?
Tejas: We know that we can use *Cc* to send a copy of the email to another email address. What happens when we use *Bcc*?
Moz: Send two emails.

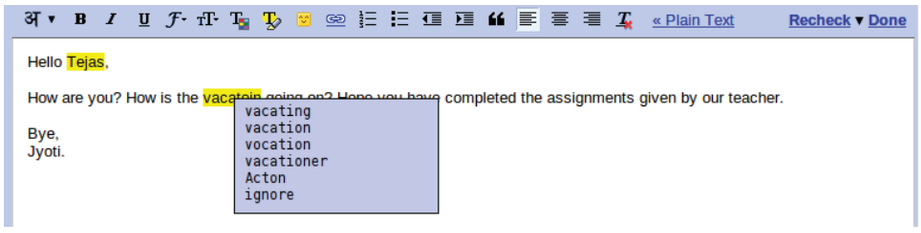
1. By entering three of our email addresses in the *Cc* field.
2. By entering the three addresses in the *Bcc* field.

Check the emails received by you. Examine the details in the header (Header contains information like who sent the mail, who else received the mail, time the mail was sent, etc.)

Jyoti: In one of the emails I can see all the addresses in *Cc* field. But in the second email I can see only my address.
Moz: When the email addresses are added in *Bcc* field, then each recipient feels as if the mail was sent to them only. They cannot see the other email recipient addresses.
Jyoti: When should we use *Cc*, or *Bcc*? Why can't we just enter all the email addresses in the *To* field?
Moz: Depending on the email content and the purpose of the email, you should decide which field to use for the email address. For example,

- *To* is the main recipients.
- *Cc* field for keeping the other recipients informed.

Some people use *Bcc* field to send invitations and greetings to many recipients without disclosing their e-mail ids to each other. Now, let us explore other features.
Jyoti: Formatting and spell checking options are also available for the text in the email.



Tejas: I see that we can even save a draft of our email and send it later. We can also discard the draft mail, if required.

Info

Composing email

Sending mail to multiple email addresses:

- Multiple email addresses can be entered in *To* field with a ',' as a a seperator.
- If email addresses of the people to whom we are sending email are entered in:
 - *Cc*: Each recipient of the email can view the email addresses of other recipients of the email.
 - *Cc* stands for Courtesy copy also called as Carbon copy
 - *Bcc*: Each recipient of the email feels that the email has been sent to their account only. The other recipients email addresses are hidden.
 - *Bcc* stands for Blind courtesy copy also called as Blind carbon copy

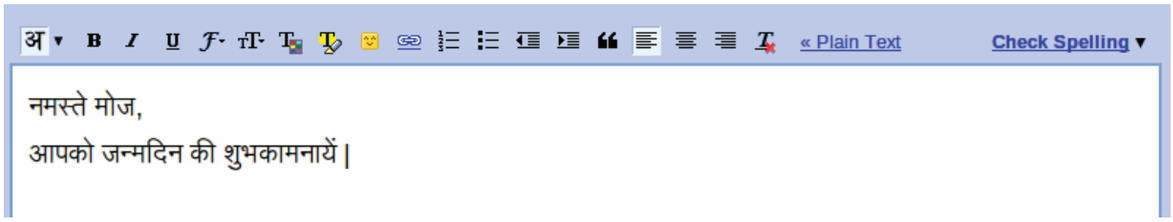
Attaching files:

- More than one file can be attached.
- The file can be of any type: text, audio, video, image, etc.

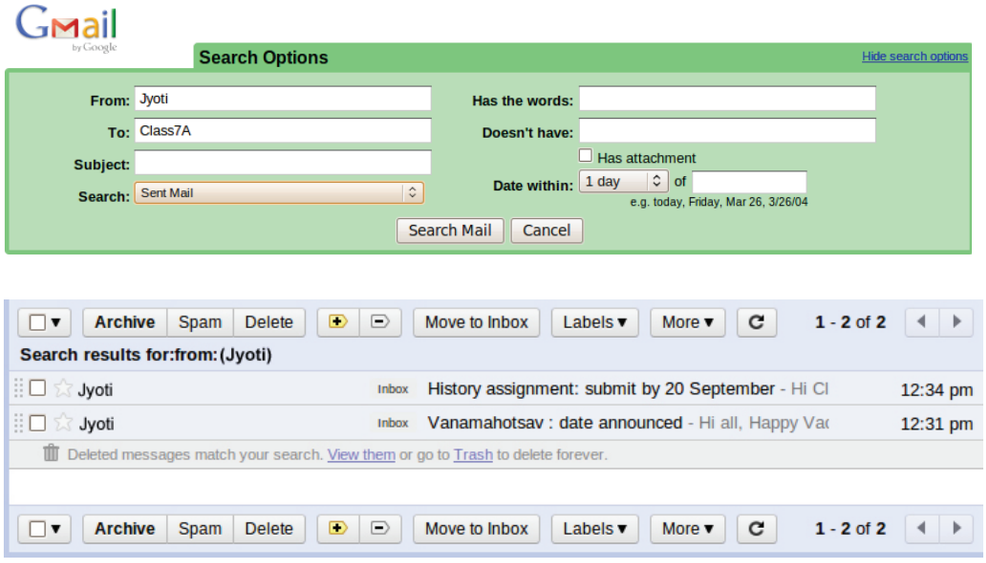
Text in email:

- Spelling check and formatting of the text is also available in many email applications.
- In some applications, multiple languages can be used for the text of the email.

Moz: What will you do when you need to send mails in another language?
Tejas: When our Hindi subject teacher asks us to send a notice, we have to use Hindi language. There is an option where we can choose the language in which we want to compose the email. Look, I select Hindi, then I type "Namaste Moz" in English and this comes up in Hindi script. Let me enter "Aapko janamdin ki shubhkamnaye". This is good. It also provides Hindi letters for us to edit the Hindi text.



Moz: Now, explore the folders that are available in the email application and see their organization structure.
Jyoti: In *Inbox* we have the mails received, and in the *Sent mail* folder the mails that we send.
Tejas: *Sent mail* folder will be the log of our assignment. We can show this to our teacher.
Jyoti: I want to show only the mails sent to the group of classmates. Using *Search* option should provide this information.
Moz: Check the *Advanced search* options.
Tejas: *Search* has many options. We can search one folder or all the folders. Other options in *Search* help us to show the specific logs to our teacher.



Moz: Whenever you see a search option, you should also look into the advanced search options. These help you to narrow down the search to your specific requirements.



For example, in Gmail, by clicking *Show search options* next to the search box, an interface with various criteria is shown. By entering your criteria in the appropriate fields, the specific message that you are looking for will be provided.

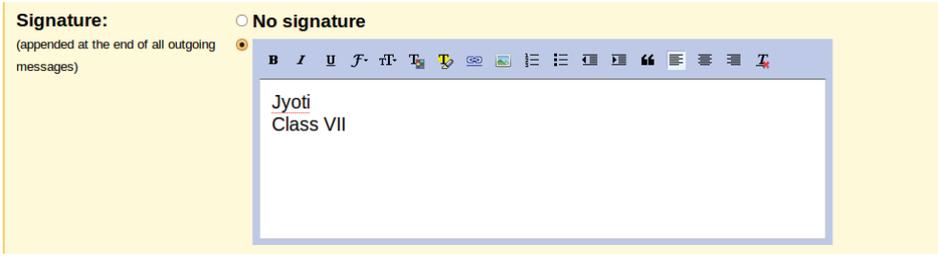
Info

Search and Advanced search

- Search in an email application is similar to a search engine on the Internet. When a query is entered, the emails having the words of the query in the message will be displayed as a list.
- Advanced search options provide many more features to narrow down the search to the specific results.

Moz: Now explore some of the settings available. You can change them to suit your needs. Check the language option and the signature option.





Info

Settings

- Each email application provides it's own Settings options.
- Use the Settings option to customize the settings to your requirements.
- You can set options like language in which to read a mail, the language in which to compose mail, editing of text from left to right or right to left (example: Urdu, Arabic, Hebrew), folder organization, view formats, managing one's account like changing password.
- In case you do not want the changes you have done in the settings, you can revert to the previous settings or to the default option provided by the application.
- First, note the default setting and then change one setting at a time and view its effects.

Tejas: I noticed that we can change our password using the accounts and import option.
Moz: Passwords are recommended to be changed once in a while. This is a good practice. What are the other precautions about password?
Jyoti: We should not share passwords with others. I remember the SMART rules. One of the 'safe' rule was do not share passwords. 1 Keep Safe - with passwords
Moz: You should also choose a password that others cannot guess. For example, do not use your birthday in your password. It can be guessed easily. One practice is to take a sentence and use the first letter of each word mixed with numbers significant to you. For example, see box below.

An example: Jyoti recently changed her password. Her previous password was formed from the birthplace of her father (Timbaktu) and the birth month of her mother (09). Her previous password was **tim09baktu**. Her new password is from letter of each word in the sentence "I am 11 years old" that is 'ia11yo'

1 Passwords protect your e-mail from being accessed by others. It is important to choose a strong password and keep it secret.

Tejas: Whenever we set a password, a comment is displayed to indicate whether the password is strong or weak.
Moz: Right. A good mix of characters, numbers and special characters makes for a strong password. Your password should be easy for you to remember, without being obvious for someone else to guess.

Guidelines

Password

- Don't choose a dictionary word as your password.
- Include a variety of characters, such as punctuation marks, numbers, and mix of capital and lowercase letters.
- Periodically change your password.

Moz: Good. You should also be familiar with the following guidelines while sending emails.

Guidelines

Dos and Don'ts of email

- Do not share your email password with others.
- Check your mails regularly. This helps you in keeping contact with friends, relatives and other acquaintances. Some schools use email to send information on activities like notices, assignment submission, schedule of exams etc.
- While sending emails make sure the subject field accurately portrays the content of your email.
- Do not send mails to multiple addresses if it is not required. Do not spam.
- Reply-to-all option should be used only if necessary.
- Be courteous. Remember you are not talking to the screen of a computer but with a human being. For example, if you are angry with a mail received, do not reply immediately. Cool down and relax first. Avoid writting sentence in CAPs in your email except where it is synthetically correct.
- Share email addresses of others only with their permission.

Task 2: Explore and gather information about sharing files.

Moz: Let us now look at the second task given by your teacher, about sharing files. What do you need to do?
Jyoti: Explore and gather information about sharing text, audio and video files. Find answers to the following questions:

a. What are the websites where files can be uploaded and shared?
b. How does one start using the sites for uploading and sharing files at these websites?
c. What are the features provided to the user at these websites?
d. Find out sites specifically meant to upload photographs, videos, or documents.
e. Are there websites which provide applications to create and share files? If yes, explore one website and list out the applications and a brief description of them.

Jyoti: First let us search for websites where we can share files.

Tejas and Jyoti find the following websites: Slideshare, Scribd, YouTube, Googlevideos, Googledocs, flickr, Picasa, facebook, Dropbox.

Tejas: On some sites like YouTube, we can upload videos and view them.
Jyoti: On sites like Picasa and flickr, we can upload photographs and organize them into albums or collage or as slides. It is mentioned on these sites that desktop versions of these applications are available for free. We can download and install such applications on the desktop, organize the photos and then upload the album or collage back onto the web.

Tejas: There are sites where we can also create and share files. For example, Googledocs has applications to create files like documents, spreadsheets and drawings. These can also be shared with others and edited collaboratively.
Jyoti: We have to register in these sites to create, upload or share files.
Moz: Consolidate the information that you have found about the sites and list them.

Info

Websites to create, upload and share files

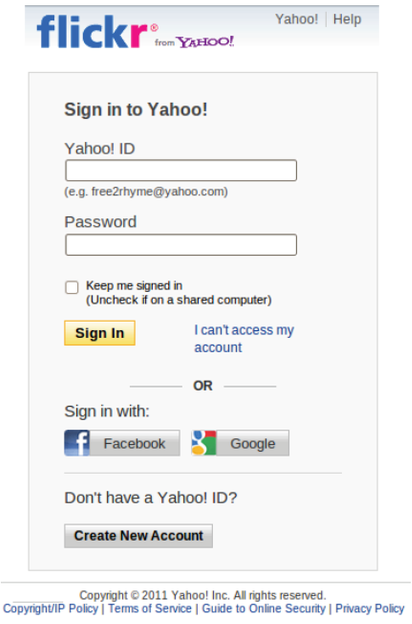
- There are websites where documents and files of many types can be created and shared. In these websites, files of many types can also be uploaded and edited. *Example: Googledocs, wikipedia*.
- Some websites allow you to upload and share specific files, example:
 - Slideshare for presentations.
 - YouTube for audio and video.
 - flickr and Picasa for photographs and organizing albums.
- Applications to view the content of various types of files are mostly provided online.
- Some websites provide a version of the application that can be downloaded and installed on a desktop to create files and folders. Then we can upload it back to the website. Example: *flickr and Picasa*.

Moz: How does one start using these websites?
Tejas: We need to sign in or login to start uploading and sharing files.

Info

How do we start using these websites?

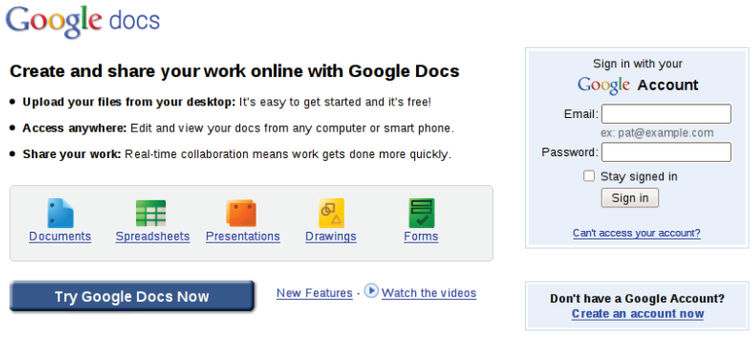
- Users have to sign in to start using the websites.
- A signing in account can be:
 - An existing account of the user on a linked website. Example: On flickr, a user can sign in using Google or Yahoo or facebook account.
 - A newly registered account on the website.



Moz: After signing in, one can upload, create and share files. What are the security features provided by these sites?
Jyoti: What are security features relevant to sharing files?
Moz: Let us look at an example. Suppose you have uploaded photographs of a party with friends. You do not want everyone on the Internet to view them. You should be able set permissions on the files so that only your friends can view them. These are called **security features**.
Jyoti: The websites provide public view, group view and an individual view permission settings. They also allow us to create a link to the file, which can be sent as an email. Only those who have the link can view the file.
Moz: By default, the file permissions are set to public view unless it is changed by the user to one of the above mentioned permissions.

Moz: What are the upload and download features of such sites? Can you upload any number of files? Can you organize files into folders?
Jyoti: Uploading and downloading of files can be done anywhere, anytime, using Internet, even through mobiles. Files can be organized into folders. A limited space is provided to the users to save and share files. Unlimited space is provided usually on payment. Most of our personal requirements can be met without payment.

Moz: Now explore the site where you can create files. Let us look at one such website and see the features that are offered on such websites.
Tejas: Let us explore Google docs. We can create documents, spreadsheets, drawings and presentations on this site.
Jyoti: All these applications are available online.



Moz: When you create a file using Google docs, where is the file stored? On your desktop or on a Google server?

Jyoti: The file is saved on a Google server. We can retrieve it whenever we need it.
Tejas: One more feature is that we can share the files by setting permissions.
Jyoti: We can also allow other users to edit the file by setting the permissions.
Tejas: The feature of editing by other users is very useful, especially when we are working as a group.



Jyoti: We need not have these applications on the desktop. We can access the files from anywhere and also share them from anywhere. We do not have to worry about taking backup of our files. This website is really very useful. We just need an Internet connection.
Moz: You are right. The website provides applications, storage space and many other services. The user need not have any knowledge about details like which computer are the files stored on. One term for this is **cloud computing**.

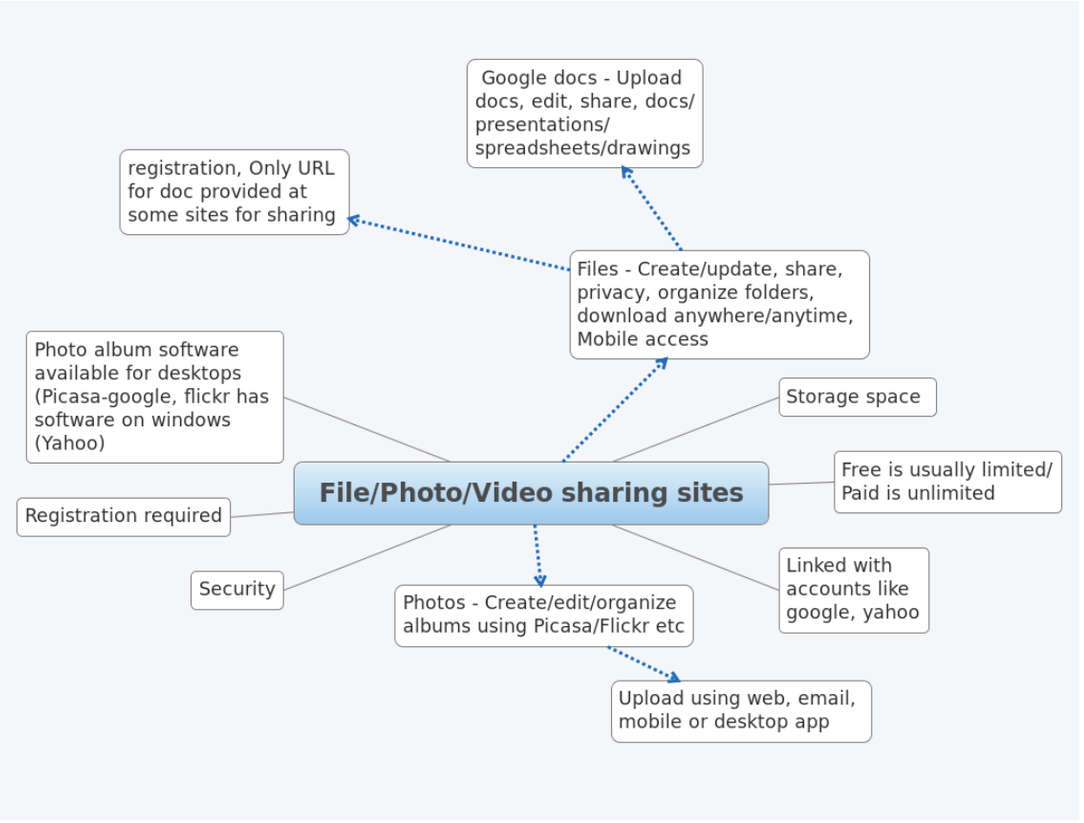
Concept

Cloud computing

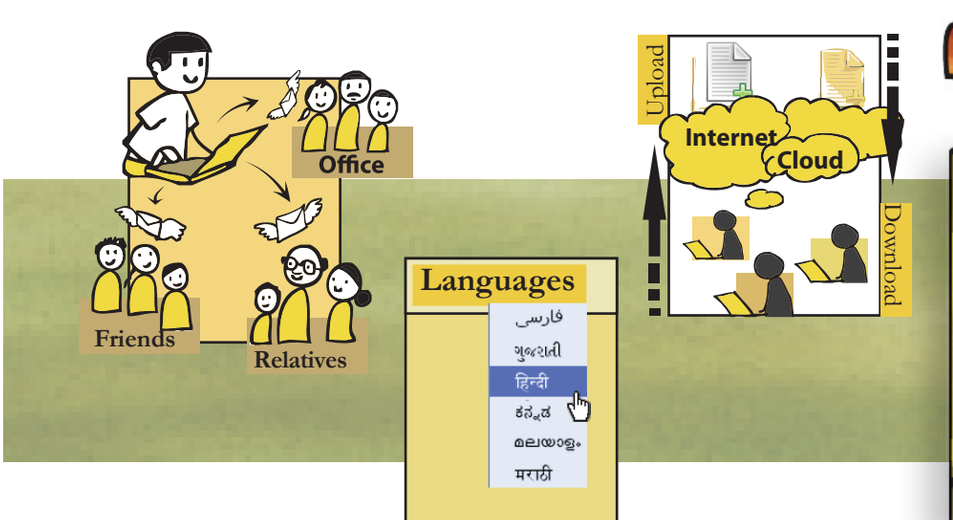
Cloud computing is a technology that uses the Internet and remote servers to maintain data and applications. Cloud computing provides computation, software, data access, and storage services to users independent of their physical location. Cloud computing allows users to use applications without installation and access their personal files from any computer with Internet access.

Moz: Good. Note that the Internet is evolving at a fast pace and many more features and new applications will be available in future.

Tejas and Jyoti: We will keep exploring and one day we will contribute to such work. Here is a summary of our understanding in the form of a mind map. (1) Graphical representation



Moz: Chin Chinaki...



Learning Outcome

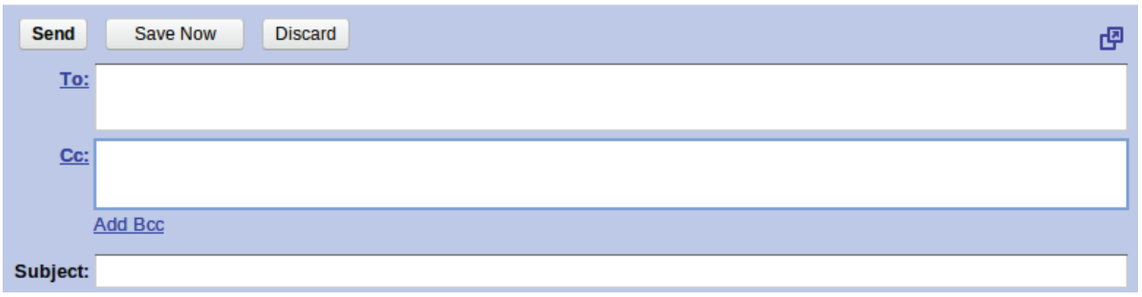
At the end of the lesson, you will be able to:

- Create and use a mailing list for group communication.
- Customize email account.
- Apply good practices for e-mail communication.
- Register an account, upload and share files on the Internet.
- Set permissions to the uploaded files.

(1) Mind map is a visual representation of ideas that are categorised, organised and linked together in a structured way.

WORKSHEETS

1. **Class 7 students are all going on a picnic to a nearby park. The Class monitor has to send mails to:**
 Parents of students about the details of the trip, and also to the class teacher and the school head master, to inform them about their trip.
 Fill the various fields in the mail given below. The 'Subject' should be relevant to the content of the email.



2. **Maitri is sending an email to her grandparents. She wants to share some photos with them. Which option in the email interface can she use for sharing photos?**
 a. Subject
 b. Attach files
 c. Contacts

3. **You have received an email from a stranger. The subject field say "Free games to enhance your thinking skills". The email has some attachments. What should you do?**
 a. Open the attachments and play the games
 b. Ignore it as it may contain virus
 c. Forward it to your friends

4. **Rani is inviting all her close friends to her house. She has prepared an email and used the 'To' field to write the email address of all her friends. You are also invited. You want to thank Rani, what option will you use 'Reply' or 'Reply All'? Give reasons.**

5. **What is NOT true about sharing files on the Internet.**
 i. You can retrieve files whenever needed.
 ii. You cannot allow user groups to edit files.
 iii. There is no need to keep a backup in your system.
 iv. We need Internet connection to access files.

6. **What are some features of Cloud computing:**
 i. The data is stored in a server.
 ii. The physical location of the server need not be known to the user.
 iii. User can access data from anywhere.
 iv. Internet connection is not required.



7. **Vacations have started and the class teacher has asked Avinash, the class monitor to intimate all students about Vana-Mahotsav which is planned after the school reopening. The students in the class are divided into different houses namely: Red, Blue, Green and Yellow. Each house has about 10 students in it. Avinash has got the email address of all the students.**

 a. How can he intimate all the students about the event? Choose the better option and give reason.
 - Send individual mails to each student.
 - Create a group and send an email to the group.

8. **Using an email application you can share a document with your friends. Then why do we need websites like Picasa and Google docs, for sharing files?**

9. **Here are some websites and some file types are given. What are the filetypes that can be uploaded and shared in these websites:**
 (Documents, spreadsheets, photographs, presentations, videos)

Googledocs	Documents, spreadsheets, presentations, videos, photographs
Picasa	
Scribd	
flickr	
YouTube	
SlideShare	

10. **The recall icon in this lesson indicates a few places where concepts from previous levels are being applied.**

 a. Identify one more connect box in the lesson and justify your answer.



1. **The teacher has assigned a project titled "Tsunami and its effects" to the class VII students. She has formed five groups and each group consists of 6 students. The groups have to email a report of the project.**

 Your group has two files to submit:

 a. Tsumani_effects.odt

 b. Tsunami.png.

 In your group, you are the one assigned to submit the report. Open a browser to write an email. The email should be complete with all the details like subject, appropriate salutation, signature, etc. Save it as a draft mail.

2. **Create a story**

 Form groups of five students. You can use your Gmail account for using Google Docs. The fun is in not discussing but just adding the next part of your version of the story. Steps to be followed to write the story using Google Docs.

 1. Choose one group member to start the story.
 2. The starting of the story is written on Google Docs by the chosen group member.
 3. The story document on Google Docs is shared with all the group members for reading and editing.
 4. Each of the group members take turns and write the next part of the story.
 5. One of the group members should end the story.
 6. Once the story is completed share it with other groups for reading.



1. Create a signature for your e-mail account in your mother tongue.
2. Use formatting options in an e-mail.

Teacher's Corner

Level VII

Lesson 6

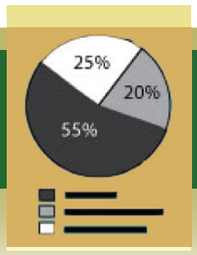
- The objective of this lesson is to teach advanced features of Internet, particularly e-mail and online file sharing. It is assumed that by now, students would be able to explore these features on their own. Hence, refrain from 'teaching'; instead allow students opportunity for independent learning. Note that this is a skill based lesson and students should be provided adequate time for hands on practice.
- The example given in the lesson establishes the need to apply particular skills such as creating group emails. You can present the same example to the students. However, instead of demonstrating how to create group e-mail, invite a student to do it. You can ask leading questions; get a cue from the dialogues of Moz for this. You can get multiple students to perform the actions, by asking a different student to continue the activity. This will keep the entire class involved. Summarize the discussion by asking students to read the info box in the lesson. If required, you can demonstrate all the steps involved in creating group mail, sending mail to multiple addresses and attaching files.
- Students already know about file search and Internet search. Revise this by asking what these searches allow the user to locate. Now tell them that similarly e-mails can also be searched to locate a particular mail. You may have to demonstrate e-mail search. Ensure that for this purpose, you open an e-mail account that has several mails, so that search would be meaningful.
- Allow students to explore how to type e-mail in different languages. You can ask different students to create a signature for themselves in their mother tongue. Inform them, that in the context of e-mail, the signature generally includes name and affiliation. Draw students' attention to other options in the settings. Invite a student to explore how to change the password. Refer the info box for Settings in the lesson to summarize the discussion. Students can enjoy changing the look and feel of the e-mail interface. This can be given as after class activity. In the end, discuss the guidelines for e-mail communication. Instruct students to do activity 1 and give worksheet questions 1, 2, 3, 4, 7 as homework.
- Now focus on how to share files online. You can give them the assignment as mentioned in the lesson (pg. 71) to explore file sharing websites. In the next class, discuss the information collected by students. The other option is for the teacher to open websites such as Picasa, Slide share, Drop box and give a live demonstration to the class. You can refer the corresponding info box (pg. 72) and the mind map (pg. 74) to summarize the discussion. Invite a student to demonstrate the use of photo sharing website. Next, focus on Google docs to show how the other kinds of files can also be shared. You may have to demonstrate this to the class. Show them how to grant permissions for viewing or editing a file.
- Ask students about what are the advantages of such file sharing over sending attachments, when one is more suitable than the other. Now tell them about cloud computing. Refer the concept box for this. Instruct students to do activity 2 and give worksheet questions 5,6,8,9 as homework.
- Summarize the lesson by revising the concepts and skills learnt. Ensure that students have clarity on when to use the advanced features of Internet.

Further Reading:

www.classle.net/sites/default/files/text/36765/e-com_0.pdf
http://www.101emailetiquettetips.com/
teacherlink.ed.usu.edu/tlresources/training2/Google/GoogleCollab.pdf
http://sites.google.com/site/gdocswebquest/

Notes:

7



Spreadsheet: Data Analysis

Aim: In this lesson, you will learn:

- To Organize the given data in a spreadsheet.
- To Calculate percentage, sum, average using functions option in a spreadsheet.
- To Represent data in multiple ways.



Tejas: Our teacher said that the local Kirana shop owner wanted some help with his business and asked us to become his consultants!
Moz: What kind of help does he need?
Jyoti: He records customers' information, sales and inventory data in various spreadsheets. He wants us to teach him how to organize and analyze this data. He wants to know how to:

1. Arrange the customers in the alphabetic order.
2. Find the top five customers based on their expenditure in the last month, to give them a discount of 8% on their bill.
3. Find the fast selling items among chocolates, soft drinks, ice creams and biscuits.
4. Find out which of the fast selling item, is sold most. (Example: Ice creams are in various sizes. Which size is sold most?)
5. Enter and format data to make it easy to read and print.
6. Print various portions of the spreadsheet.

Moz: How are you planning to proceed?
Tejas: We have taken sample data from the shop owner.
Jyoti: We have entered the data in the spreadsheet. We applied our previous knowledge of formatting to select Font colour and highlight selected columns. 1 Spreadsheet
Jyoti: Now, we will explore and learn the features required for the analysis of the data.
Moz: Good strategy. Let us start.

1 Spreadsheets are used to enter and analyse numeric data. They can be used to make projections and draw graphs based on data.

1. Arrange the customers in the alphabetic order.

Tejas: Here is the list of frequent customers. Let us sort the list to arrange customers in alphabetic order.

	A
1	**Customer name**
2	Usha
3	Tabish
4	Bhairav
5	Rekha
6	Yasmin
7	Savani
8	Prashant
9	Aruna
10	
11	

Moz: Yes, you can sort both textual and numerical data in spreadsheets. You can also sort in either ascending or descending order.

Jyoti: Let us sort customer names in ascending order.

Concept

Sorting

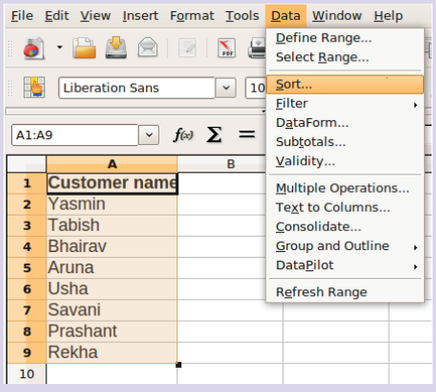
- Sorting is the process of placing the data in some well defined order.
- Sorting can be performed on data in one or more columns.
- The order is defined for each column (ascending or descending), and the sort is performed on the column in the defined order.

Skill

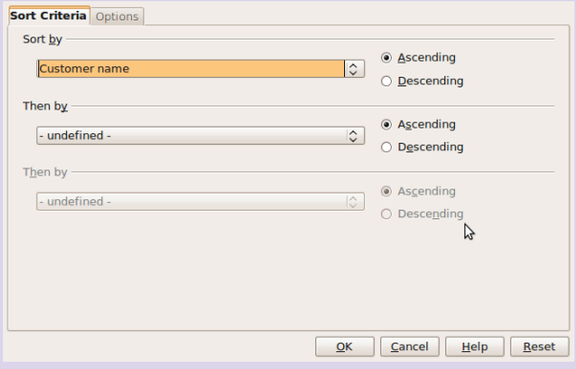
Sorting of data

1. Click on the column which needs to be sorted. The first row data is assumed as the header of the column.

2. Now select 'Data' from the menu bar, in the drop down list select 'Sort'.



3. In the displayed window, select the sort order whether ascending or descending. You can sort the same data in three levels.



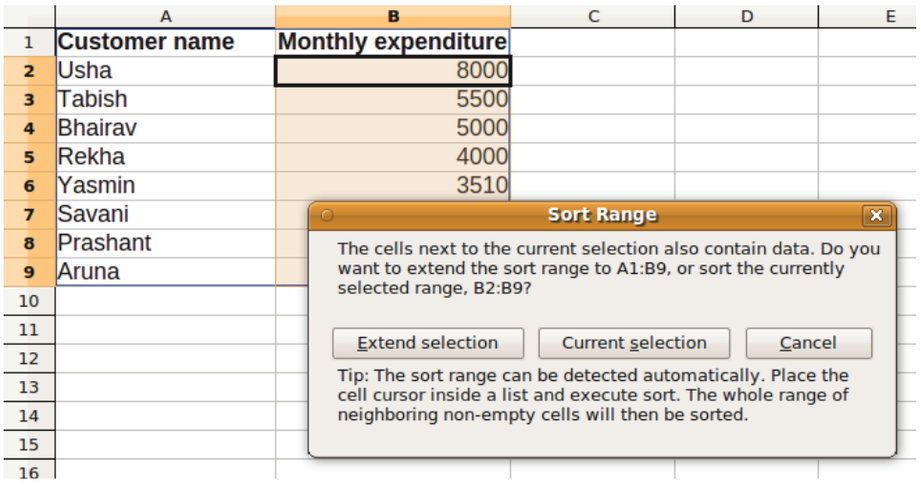
4. Click OK to sort the data.

	A	B
1	**Customer name**	
2	Aruna	
3	Bhairav	
4	Prashant	
5	Rekha	
6	Savani	
7	Tabish	
8	Usha	
9	Yasmin	

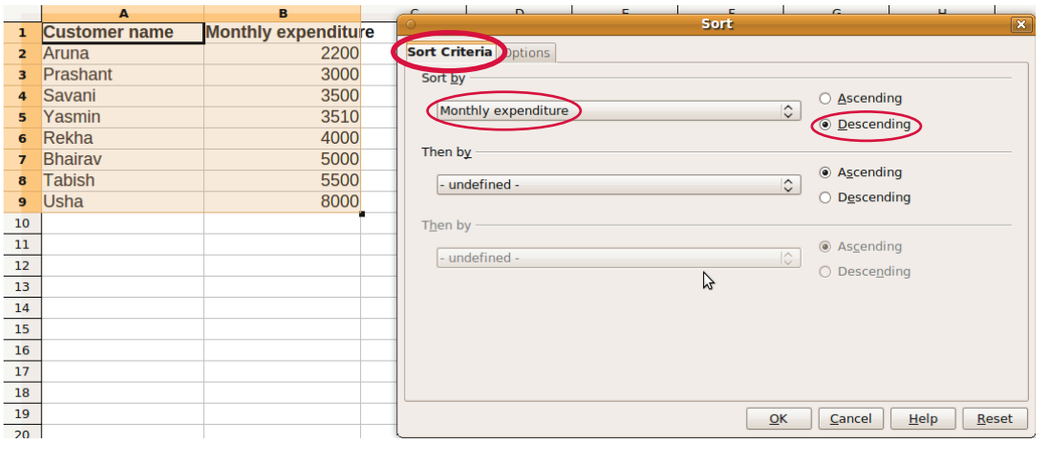
2. Find the top five customers based on their expenditure of last one month. Then give discount of 8% on their bill.

Tejas: We also have data on the monthly expenditure of these customers. Let us enter this data as the next column.
Jyoti: We have to find the top 5 customers using the monthly expenditure. We can select the data in the *Monthly expenditure* column and sort it in the descending order.

Tejas: If only the *Monthly expenditure* column is selected and the first column remains unchanged, then the amounts will not match the customer names.
Jyoti: We have to extend the selection to customers too.

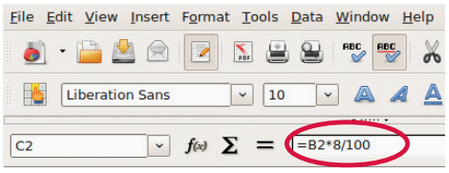


Moz: Good observation. You should not select and sort on a single column when you have multiple columns of data. Instead, select all the columns in the table while sorting.
Tejas: Since expenditure is our focus now, let us sort in ascending order of expenditure (in sort criteria tab: see the figure below).

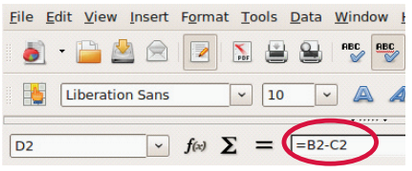


Jyoti: We have to now compute the discount amount for the top 5 customers and also provide the final bill amount for each customer.
Tejas: In the next two columns, we can calculate the discount and the final amount payable by the customer. We need to write the formulas for each of these columns.

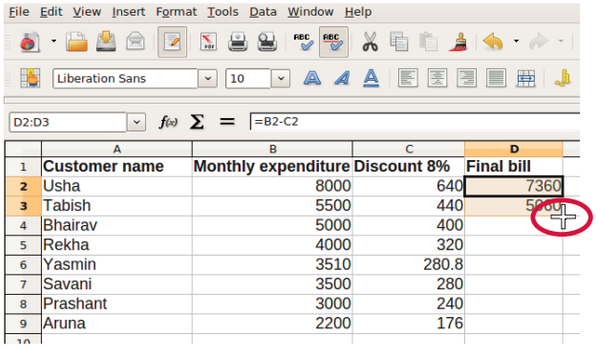
1. Calculate discount for one customer



2. Calculate final amount for one customer.

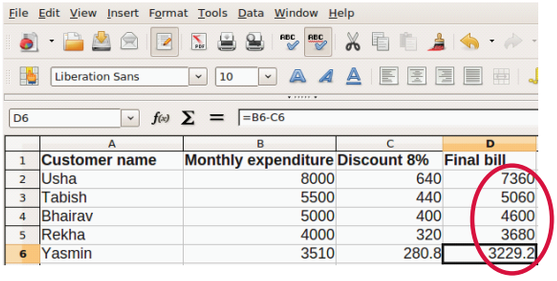


3. Drag handle to repeat calculation for other customer.



	A	B	C	D
1	Customer name	Monthly expenditure	Discount 8%	Final bill
2	Usha	8000	640	7360
3	Tabish	5500	440	5060
4	Bhairav	5000	400	
5	Rekha	4000	320	
6	Yasmin	3510	280.8	
7	Savani	3500	280	
8	Prashant	3000	240	
9	Aruna	2200	176	

4. Final amounts for each customer.



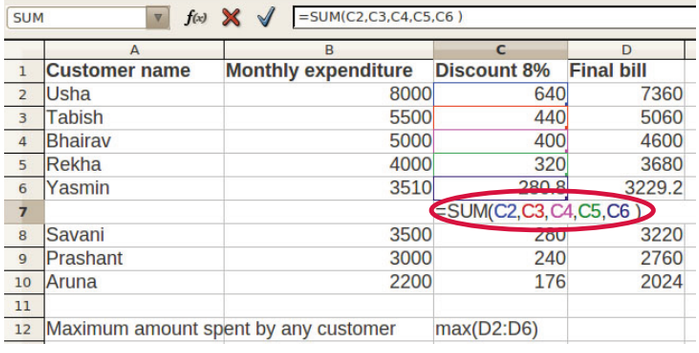
	A	B	C	D
1	Customer name	Monthly expenditure	Discount 8%	Final bill
2	Usha	8000	640	7360
3	Tabish	5500	440	5060
4	Bhairav	5000	400	4600
5	Rekha	4000	320	3680
6	Yasmin	3510	280.8	3229.2

Moz: Suppose the shopkeeper decides to change the discount percentage, all you have to do is change the formula in the cell number: C2 and copy the same formula in the other cells. Alternately, you can also use the handle and drag the formula to the other cells (Illustrated in 3 above.)

Tejas: We had earlier used the Sum icon to compute the sum. Is there any other way of doing this?

Moz: You can type in the formula in the cell where you want to display the sum. For example, if you want to find the total discount given to the top five customers, type in the formula: =SUM(C2,C3,C4,C5,C6) or =SUM(C2:C6)

Jyoti: I have also seen other built in Functions in Spreadsheets like Average (AVE), Maximum (MAX), Minimum (MIN), etc. MAX(D2:D6) will give us the maximum amount spent by any customer.



	A	B	C	D
1	Customer name	Monthly expenditure	Discount 8%	Final bill
2	Usha	8000	640	7360
3	Tabish	5500	440	5060
4	Bhairav	5000	400	4600
5	Rekha	4000	320	3680
6	Yasmin	3510	280.8	3229.2
7			=SUM(C2,C3,C4,C5,C6)	
8	Savani	3500	280	3220
9	Prashant	3000	240	2760
10	Aruna	2200	176	2024
11				
12	Maximum amount spent by any customer		max(D2:D6)	

3. Find the fast selling items among chocolates, soft drinks, ice creams and biscuits.

Sample data of the products, stock and sale:

	A	B	C
1	Name of the product	Stock	Sale of product
2	Chocolates	250	200
3	Ice cream	200	190
4	Biscuits	100	60
5	Soft drinks	150	90

Jyoti: For each product, we have to compute the percentage of the item sold to the stock of the item. Then compare the data and decide which are the fast selling products.

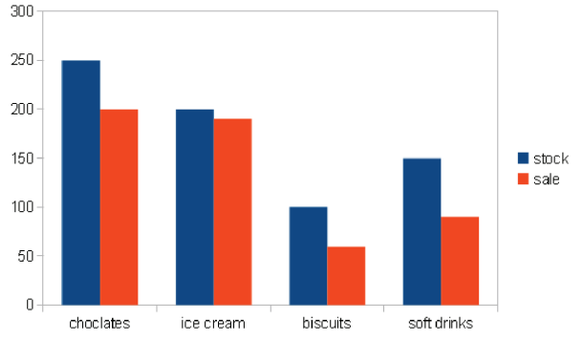
Moz: Correct.

D2 | =(C2/B2)*100

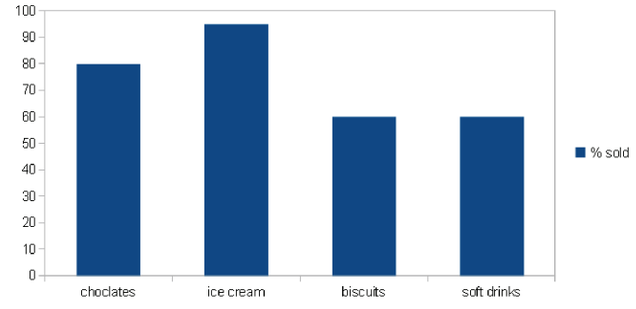
	A	B	C	D
1	Name of the product	Stock	Sale of product	% of stock sold
2	Chocbıates	250	200	80
3	Ice cream	200	190	95
4	Biscuits	100	60	60
5	Soft drinks	150	90	60
6				

Tejas: We can provide a chart which can give a clear idea about the fast moving items. We will make a bar chart which shows the stock and sale and another chart that shows the percentage sold, for easy comparison. (1) Multiple representations

Jyoti: By looking at this graph the shopkeeper will get an idea about how much of each product he should stock.



Stock and sale of products



Percentage of stock sold

Moz: Good idea.

Tejas: The stock and sale comparison clearly shows that gap is wider for soft drinks.

Moz: Which product is of highest demand?

Jyoti: Ice creams, because the percentage sold is highest and the stock is also highest.

Moz: Right. Now see which type of ice creams are in most demand. The shop keeper can then decide how much to stock of each ice cream.

4. For the fast selling item, find out the kind and size that is sold most? (Example: Ice creams are in various sizes. Which size is sold most?)

	A	B	C	D	E
1	Variety	Stock	Sold	Remaining	% Sold
2	Family pack ice cream	75	15	60	20
3	Cup ice cream	250	225	25	90
4	Cone ice cream	350	340	10	97
5	Stick ice cream	150	85	65	57

Tejas: We can again apply the knowledge of calculating the percentage sold for different types of ice cream.

Jyoti: Family pack ice cream is sold least while the cone ice creams and cup ice creams are sold the most. This means there is little demand for family pack but high demand for cup and cone ice creams.

Moz: Very well interpreted. Now show me how you formatted the tables to make them look so neat.

(1) Information can be represented in lists, tables, mind map, graphs or charts. Choose a form of representation that matches the nature of information and purpose of use.

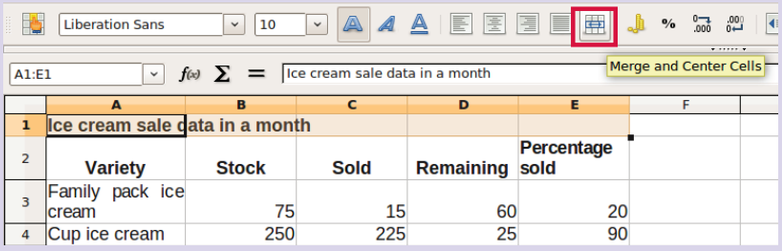
5. Format data

Jyoti: We used different options such as merge cell to fit the text inside a cell.
Tejas: We used merge cell option, since we wanted to increase the size of the cell to enter the title of the table.

Skill

To merge cells

1. Type in the contents to be displayed in a cell.
2. Select all the cells which need to be merged.



	A	B	C	D	E	F
1	Ice cream sale data in a month					
2	Variety	Stock	Sold	Remaining	Percentage sold	
3	Family pack ice cream	75	15	60	20	
4	Cup ice cream	250	225	25	90	

3. Click the icon () merge and center cells.

Jyoti: Similarly, while entering address of the customers, the text spreads across other neighbouring cell. When data is entered in the neighbouring cell, the overlapping text becomes invisible. There must be some option to format it.

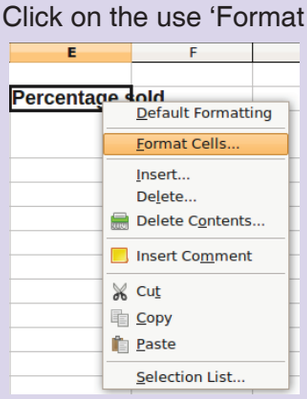
Tejas: Let us select the cell and right click. We can explore the different options that come up.
Jyoti: I see that Format cells option allows us to do several actions. Let us check each of these.
Tejas: I found the *Justified* option under alignment option. Clicking on this, we can fit the text to the width of the column.

Jyoti: Clicking on 'Wrap text automatically' expands the cell so that all the text remains visible.
Moz: Good work!

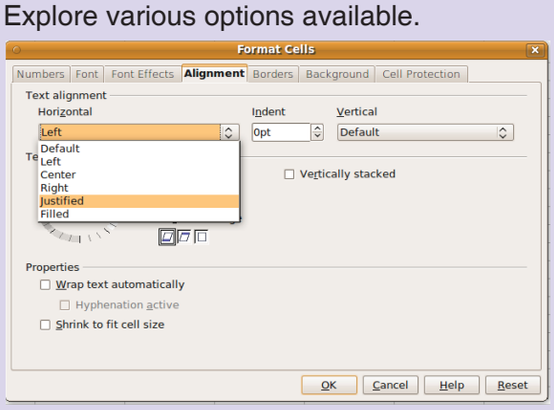
Skill

To format a cell

1. Select the cell that needs to be formatted and right click the mouse.
2. Click on the use 'Format Cells' option.



3. Explore various options available.



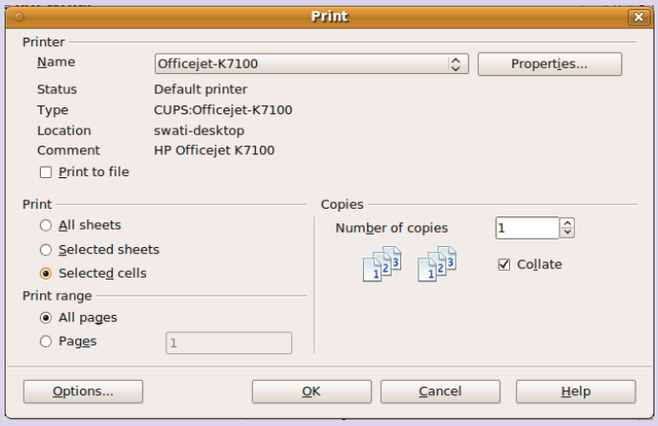
6. Printing options (selected area, file).

Jyoti: Now let us print our spreadsheet. It must be similar to printing other office files.
Tejas: But a spreadsheet file has several columns and rows that we have not used for our data. In addition, there are multiple sheets. We would end up printing empty columns and rows if we print all sheets.
Jyoti: I see an option of printing selected cells. I think, we can select this and print only the table that we want.

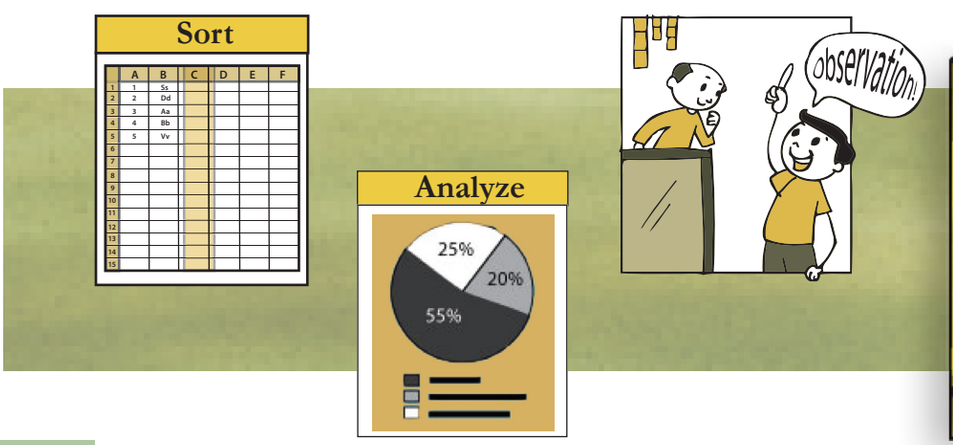
Skill

Printing

Select 'Print' from the menu bar option 'File'. In the window displayed , select the required options and click OK.



Moz: It is great to see you explore and learn the features of applications on your own.
Chin Chinaki...

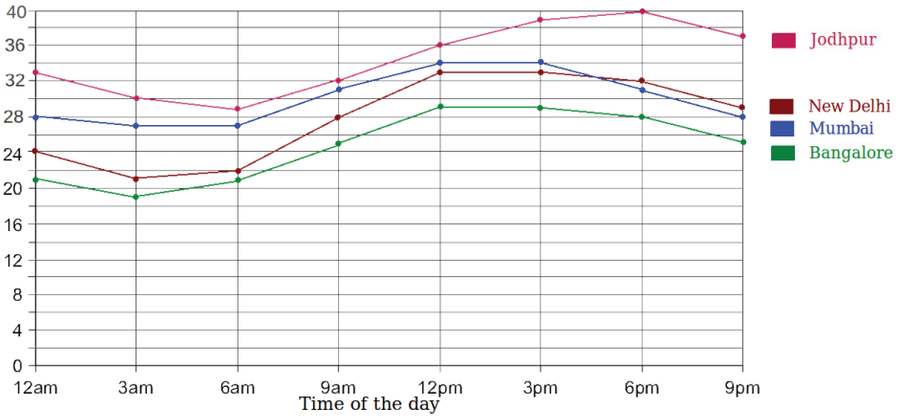


Learning Outcome

At the end of the lesson, you will be able to:

- Organize data using sorting and formatting.
- Apply formulas, draw charts.
- Interpret information in tables and graphs.
- Print selected area of a spreadsheet.

1. **Following is a line graph for the temperatures in 4 cities, namely New Delhi, Mumbai, Bangalore and Jodhpur on a given day. Study the graph and answer the following questions.**



a. From the above graph, fill the data in the table given below.

Time	Temperature			
	New Delhi	Mumbai	Bangalore	Jodhpur
12 Midnight				
03:00:00 am				
06:00:00 am				
09:00:00 am				
12:00:00 noon				
03:00:00 pm				
06:00:00 pm				
09:00:00 pm				

b. What is the temperature difference in New Delhi between midnight and noon?

c. At 3 pm, which city was the hottest?

d. In New Delhi, did the temperature rise or fall from 9 pm to 12 am?

e. In which city was the lowest temperature recorded? What was the lowest temperature?

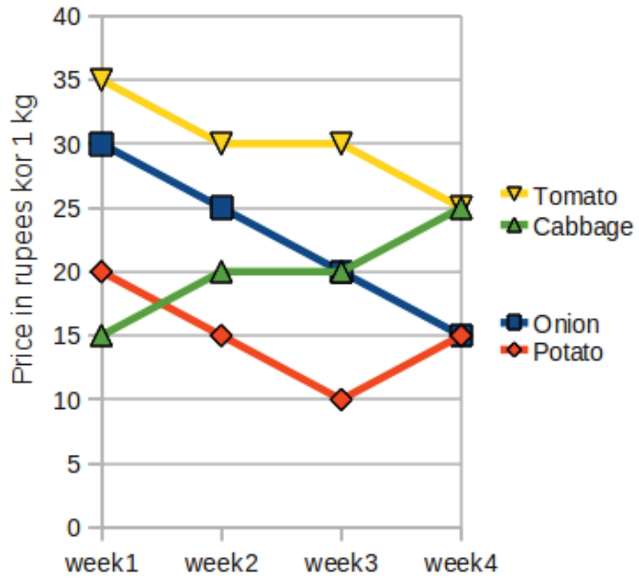
f. In which city was the highest temperature recorded? What was the highest temperature?

g. A city is comfortable, when the temperature is below 30 degrees in the daytime. Which is the most comfortable city?

h. Order the cities in descending order of comfort?

i. A city is extreme, when the difference between highest and lowest temperatures is less than 20 degrees. Which is the most extreme city?

2. The price variation for 1 kg of vegetables in the month of March is given in the graph below. Study the graph and answer the following questions.



a. Using the data given in the graph, fill in the table given below.

Price in the month of March					
Sl. No	Name of the vegetable	week1	week2	week3	week4
1	Onion				
2	Potato				
3	Tomato				
4	Cabbage				

b. Which are the two vegetables that maintained the same price for two weeks?

c. What is the difference between the price of tomato in the beginning of March and end of March?

d. Name the vegetable whose price consistently fell in March?

e. Which vegetable was cheapest in the 2nd week of March?

f. What is the difference in prices of cabbage and tomato in week 3?



g. Riju is buying vegetables in week 3. He has got 80 rupees with him. The shop has all the above vegetables. He has to buy three types of vegetables. The minimum quantity he can buy of each vegetable is 1 kilogram. But he has to follow the conditions below:

If he buys Onion, then he has to buy Potato also.

If he buys Tomato he can not buy Cabbage.

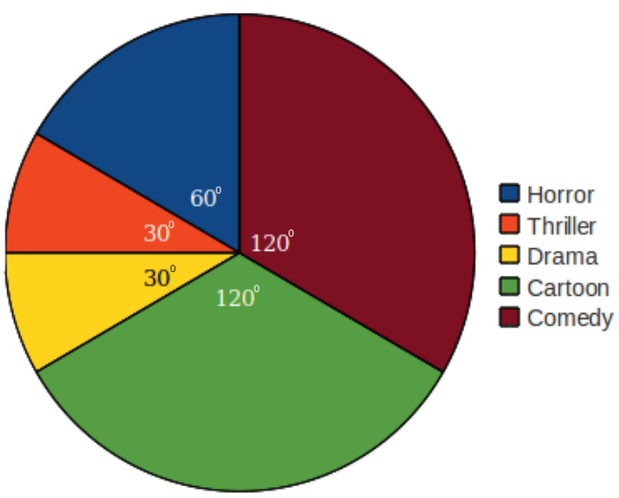
Find out the various options available to him.

3. Here is the data of a survey conducted among 45 students of a class on their favorite food.

Food Item	Number of students
Pizza	15
Dosa	6
Noodles	9
Burger	10
Soup	5

Draw a pie chart for this data.

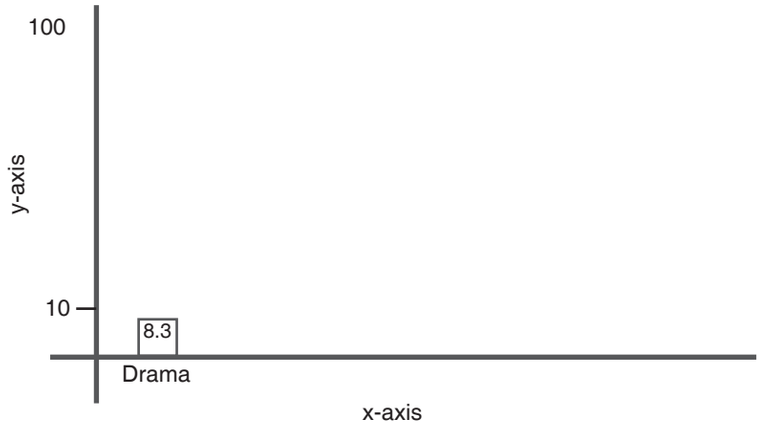
4. **Given pie chart represents the types of movies preferred by moviegoers. 60 moviegoers were interviewed for the survey. Study the pie chart. The degree of the angle for each section is mentioned in it.**



a. Fill in the table for the data given in the pie chart.

Type of movies	Number of people who like this	% of people
Drama	30/360 * 60 = 5	5/60 * 100 = 8.3%

b. Draw a bar graph of percentage of people who liked each category.



5. **The recall icon in this lesson indicates a few places where concepts from previous levels are being applied.**

a. Identify one more connect box in the lesson and justify your answer.



ACTIVITY

1. **A fun trip to a water park is arranged for the students in Class 7. There are two divisions in Class 7, each with 40 students. A contribution of Rs.150 is to be collected from each student going on the trip.**
 - **10% of the contribution goes to the entrance fee of the water park**
 - **20% of the contribution goes towards food expenses**

 Bus charges for the trip are Rs.2000. School will bear half of the bus charges. Following table compares the expenses and the money collected, according to the number of students going for the trip.

Number of students	Total contribution (Number of students x 150)	Entrance fee (10% of total contribution)	Food expenses (20% of total contribution)
5	750		
10	1500		
15	2250		
20	3000		

a. Enter the above table in a spreadsheet application.

Answer the following questions:

b. What is the total expense, if all the students go for the trip?

c. What is the minimum number of students needed so that all expenses are met?

2. **Given are the height and weight of some of the students in a school. Enter this data into an excel sheet.**

Name of the student	Height	Weight
Aayush	5 ft 4 in	55 kgs
Pallavi	5 ft 2 in	50 kgs
Robin	4 ft 11 in	45 kgs
Sameer	5 ft 5 in	70kgs
Vrinda	5 ft 2 in	58kgs
Sneha	4 ft 9 in	40 kgs
Jaya	5 ft 4 in	58 kgs
Pranav	4 ft 7 in	40 kgs
Dileep	4 ft 6 in	50 kgs
Riya	5 ft 3 in	60 kgs
Raju	5 ft	52 kgs

Do the following activities:

i. Arrange these data in:
 a. Names in alphabetic order
 b. Weight in ascending order

ii. Plot line graphs of:
 c. Name against height
 d. Name against weight

Answer the following questions:

a. Name the students who have the same weight.

b. How many students are there whose height is more than 5 ft 4 in?

c. Find the average height and average weight of the students?



1. Copy selected table/graph and insert it into a word document.
2. List common features of word and spreadsheet application.

Teacher's Corner

Level VII

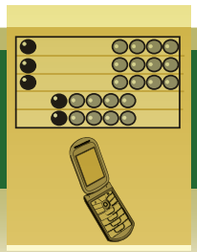
Lesson 7

- The objective of this lesson is to teach spreadsheet features for organizing data, performing calculations using functions, and representing data in multiple ways. This is done with an example of students playing a role of consultant to local Kirana (grocery) shop.
- Begin the lesson by presenting the case study of the Kirana shop owner. If required, you can do this using a skit. It is important that students are able to relate to a real life situation where knowledge of spreadsheet can be applied. This establishes the need for learning the features of the application and facilitates learning.
- You can follow the examples in the lesson to teach the concept and skill of sorting, performing calculations and drawing graphs. Enter the data as indicated in the lesson and demonstrate the steps to do the various activities. Spend enough time on explaining how to identify what actions need to be done on data. The students already know about how to identify goal, identify the steps to do activities, and apply reasoning skills. Use this opportunity to revise this knowledge.
- Students already know how to calculate sum and percentage as well as draw graphs. Revise this and teach them the new skills included in the lesson. Students need to understand what kind of graph is suitable in a given example. You can encourage them to try alternate graphic representations, and ask questions on which kind of graph is more suitable than the other. Summarize the discussion and emphasize that just because spreadsheet allows you to draw a variety of graphs, does not mean that you select a form just because of novelty rather than match of purpose.
- Teach students how to draw a pie chart. For this, you can take an example of how they spend their pocket money on various items. Following this, ask them to do worksheet questions 3.
- Students already know how to read data represented in a graph. Revise this and ask students to do worksheet questions 1 and 2. You can give worksheet question 4 as homework.
- Formatting skills have been taught already in the context of other office applications. You can mention that same skills can also be applied for spreadsheet. However, since spreadsheet consists of cells, different skill set is required to format the cells. Teach them the skills to merge the cell and wrap the text included in the cell. Following this, allow students to explore the remaining formatting options on their own. Teach students how to print data in spreadsheet.
- Summarise the lesson and instruct students to do activities 1 and 2 included in the lesson.

Further Reading:
http://www.techteachers.com/mathweb/spreadsheetactivities.htm
http://alicechristie.org/edtech/ss/
http://www.lttechno.com/links/spreadsheets.html

Notes:

8 History of Computers: From Abacus to Smart phones



Aim: In this lesson, you will learn:

- Various devices that have been used for computations in the past.
- Major milestones in development of modern day computers
- Development of Internet, browser and other Internet based applications, games and Linux.



Jyoti and Tejas have brought an abacus, pictures of old computers, a handmade slide rule, a cloth with pretty designs and some notes written on sheets of paper. Other students are looking on and wondering how these articles are related to history of computers.

Jyoti: We have gathered history of computers right from 3rd century B.C. It is very interesting to find what people did when there were no computers.

1 Information gathering

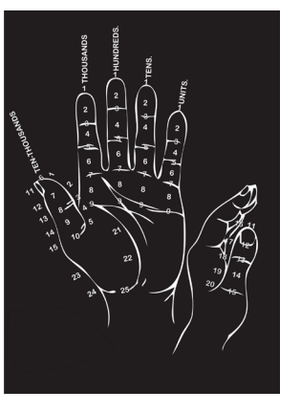
Moz: We have been using computers for the past 40 years. But the origin of the concepts, algorithms and the developments in computations date back to the very early times and cultures.

Tejas: In very early days, when there were no computational devices, people used pebbles, bones and the fingers of hands to count and calculate.

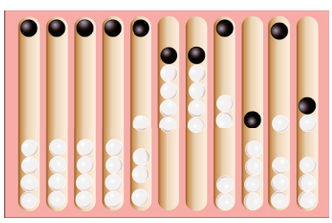
Jyoti: They even used ropes and shapes for some measurements. For example: For assuring a right angle, people used 3-4-5 right triangle shape or a rope with 12 evenly spaced knots, which could be formed into a 3-4-5 right triangle.

Use of counters to aid calculations: 3rd - 6th century B.C

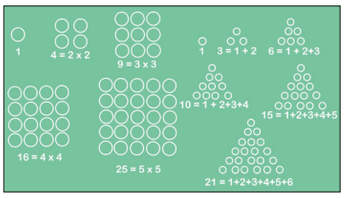
Simple calculations were done in innovative ways with stones, pebbles and even bones. These were called counters. A device with more complicated calculation abilities was the abacus, of which we can find many versions.



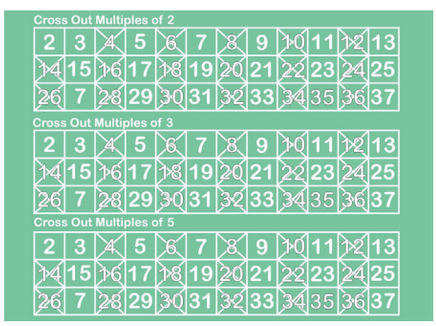
Calculation using fingers



Abacus – 6th century B. C



Computing Squares and sums by arranging counters



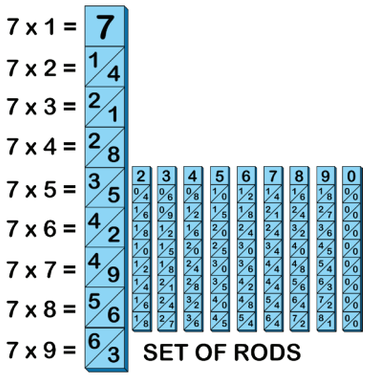
Sieve of Eratosthenes: Finding prime numbers in 3rd century B.C

1 The first step for gathering information is to list what you know, what you do not know. Next, gather, consolidate, analyse and organise the gathered information.

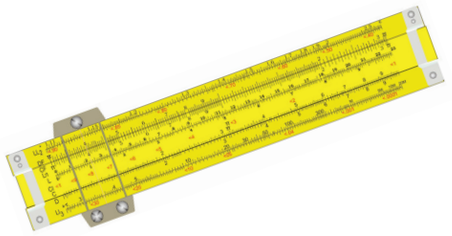
Tejas: Early mathematicians around the world such as al-Khwarizmi, Panini, and Euclid developed many algorithms.
Jyoti: Algorism and algorithm stem from Algoritmi, the Latin form of al-Khwarizmi's name.

Simple devices to aid human calculations- 16th century

Explorations of various continents and trading brought in the requirements of precise calculations of sea routes, accounting, planetary positions, and navigational tables- 16th century.
Mechanical devices were also developed to assist in tedious and repetitive calculations like generating calendars of a year, taxing and trading.

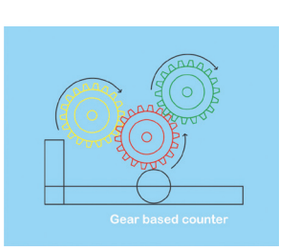


Napier bones- Numbers 0 to 9 were marked on a set of ivory sticks in such a way that the product of any number can be found by placing the sticks side by side.

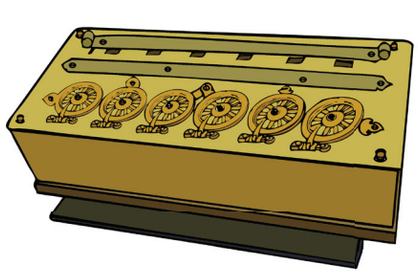


The Slide rule was used for landing man on the Moon. This was used by NASA engineers in 1960s for the Apollo mission.

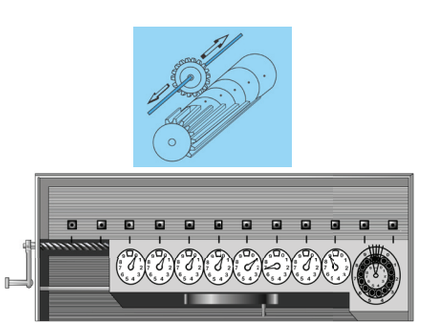
Devices with gears and flutes for calculations- 16th-17th century



Schikard's calculating clock with gears



Pascaline built by Pascal for his father who was a tax collector.

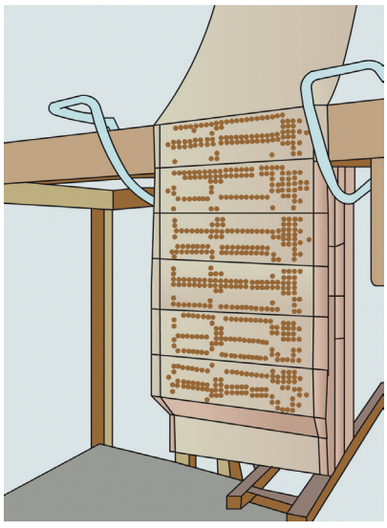


Stepped reckoner by Leibniz using flutes.

Jyoti: The first computers were people. This was a job title given to people who did repetitive calculations for navigational tables, planetary positions and other such requirements.
Tejas: Women with mathematical proficiency were often employed for the job.
Jyoti: I am sure a lot of calculations were involved in building pyramids and Taj Mahal.
Tejas: Of course mathematics and physics knowledge was applied to weave the designs for the beautiful old tapestry that we see in many places.
Moz: Good observations. So they started inventing devices for precise calculations and automation of certain tasks. One of the important automation which is the Jaquard loom is important in the computer history.

Automation with punched cards 18th-19th century

Trade, travel, and increase in population (which demanded increase in requirements like clothing, food etc.), led to automation of machinery in 18th-19th century. Developments in logic and need for more complicated calculations led to mechanical computation devices which were designed and implemented for varied degree of computations. But, accuracy, speed and precision could not be ensured due to the wear and tear of the mechanical components.



Jyoti: The Jacquard loom invented by Joseph Marie Jacquard used punched cards to control a sequence of operations. A pattern of the loom's weave could be changed by changing the punched card.

Moz: Why do you think Jacquard looms are important?

Tejas: The loom weaves the design on the punched card by executing the sequence of operations on the card, one line after another. This idea is used in modern programming. For example, in a Scratch program the computer executes the blocks one by one.

Jyoti: In computers we use an input device like keyboard to input data. The punched card is like an input to the loom.

Moz: Yes. You are right. Babbage used the punched card idea to store data in his analytical machine.

Tejas: Boolean algebra which is extensively used in computers was also developed in 19th century by the mathematician George Boole.

Moz: Yes. **Boolean logic** is one of the most important concepts in computers. You will be learning about these concepts of programming soon. Note that the 19th century contributions of automating and the development of algorithm are of immense value to the development of electronic computers in the 20th century.

Info

Mechanical computation machines- Early 19th century

Babbage- The Analytical Machine

The anlaytical machine was designed but not built. The main parts of the machine were called the "store" and "mill". Punched cards store data, which is equivalent to the memory unit in computers. Mill weaves or processes the data to give a result, which is equivalent to the central processing unit in computers. He used conditional processing of data. Example: If block in Scratch.



ADA lovelace- The first programmer

ADA lovelace, a friend of Babbage wrote the first sequence of instructions for various tasks for the analytical engine. She used programming concept of looping for repetitive actions. Example: repeat block in Scratch. She used subroutines in her programs.



Hollerith desk

It consisted of a card reader which sensed the holes in the cards, a gear driven mechanism which could count and a large wall of dial indicators to display the results of the count. For example: a car speedometer is a dial indicator. This was used for U.S census 1890.

Analog computers- First general purpose computers- first half of 1900-1940

The war time requirements for artillery firing, communication of strategies using complicated codes led to electromechanical computers where magnetic storage and vacuum tubes were first used. Babbage's punched card was used to input data.

Tejas: Early 20th century saw many analog computers which were mechanical or electrical or electromechanical devices.

Jyoti: These were used for limited purposes like solving mathematical equations, decoding messages, or for tables of firing artillery in world war II.

Moz: Yes. These computers were based on binary representation of data and boolean algebra.

Info

Mechanical computation machines - 20th century

1936 : Alan Turing regarded to be the father of modern Computer Science provided a formalisation for the concept of algorithm and computations.

1941 : Konrad Zuse inventor of the program-controlled computer, built the first working computer. This computer was based on magnetic storage.

1942 : Atanasoff-Berry computer which used vacuum tube, binary numbers, was non programmable.

1943 : Colossus a secret British computer with limited programmability built using vaccum tubes, was built to break the German wartime codes. It was the first computer to read and decipher the codes using cryptography.

1944 : Harvard Mark I an electromechanical computer built out of switches, relays, rotating shafts, and clutches had limited programmability. It used punched paper tape instead of the punched cards. It worked for almost 15 years. **Grace Hopper** was the primary programmer. She invented the first high level language called **Flow-Matic** which later developed into COBOL. She also constructed the first compiler. She found the first computer "bug": a dead moth that got into the Mark I and whose wings were blocking the reading of the holes in the paper tape. The word "bug" had been used to describe a defect since at least 1889 but Hopper is credited with coining the word "debugging" to describe the work to eliminate program faults.

Jyoti: In 1945, Von Neumann devised the "Stored program architecture". This changed the way a program was written and altered.

Moz: Yes. The program and data were stored in memory and instructions were processed one after the other.

Tejas: The input was typed on a terminal which looks like a monitor with keyboard in the front, or on cards. Each instruction was typed on one card and the deck of cards was read by a card reader and stored in memory.

Moz: Those who submitted the program had to wait till their program was processed to obtain the printed output.

Jyoti: If the programmer had to change the program, they had to type in another card and insert it in the deck of cards.

Digital computers- 1940 to 1970

Census, elections, research in various fields and many such advances in different fields required increased speed, precision and immediate results. In the mid 1940s, stored program digital computer architecture was designed with CPU and memory to hold instructions and data.

These computers were built using vacuum tubes, transistors and integrated circuits, and are classified into the first three generations of computers respectively. The classification of generations is based on technology, speed, storage, reliability and cost.

Info

Computation machines- Second half of 19th century

First generation computers
These computers made from 1945-55 were named ENIAC, EDVAC and UNIVAC. The processor (or CPU) in these computers were made of **vaccum tubes**. They were the size of an entire room, over 5 meters high and very costly to maintain.

Second generation computers
These computers developed after 1955 and had transistors in the place of vaccum tubes in the processor. **Transistors** were more reliable, much cheaper and smaller. This generation computers had more computing power, were smaller in size, easier to maintain and were more affordable than the previous generation.

Third generation computers
These computers developed in the 1960's, used **integrated circuits**. The trasistors were miniaturised and kept on silicon chips called semiconductors, which drastically increased the speed and efficiency of computers.

Computers with Microprocessors- 1970 onwards

Use of microprocessors in computers increased reliability, precision and reduced size and cost. This led to uses of computers in offices, colleges, personal use and exploration of computer usage in every field.

Jyoti: Microprocessor revolution brought in the explosion of usage of computers in every field.
Tejas: The size of computers started decreasing and the speed started increasing.
Jyoti: The storage space also started increasing.
Tejas: Most importantly the reliability of computers increased and the cost started decreasing.
Moz: Yes. Invention of microprocessors revolutionised the computer development and due to the reduction of cost, by 1990, owning a personal computer became common.

Info

Computation machines- After 1970s

Fourth generation computers
These were developed in the 1970s and used **microprocessors** or **chips**. The microprocessors were smaller than a postage stamp and had tremendous computing capabilities.

Fifth generation computers
These were developed in 1980s and used the concept of **Artificial Intelligence**. The different types of fifth generation computers are Desktop, notebook or laptop, palmtop, server, Mainframe and Super Computer.

- Desktop computers are based on ICs.
- Notebook or laptop computer is same as desktop but can be carried around.
- Palmtop is a miniature version of notebook with limited capabilities.
- Server is a powerful version of desktop capable of catering to various applications in a network environment.
- Mainframe is a powerful version of server and is capable of handling huge applications and data processing.
- Super computer has multiprocessors to perform typical scientific applications that need trillions of information per second while processing.

Jyoti: Computers are also being used in many devices like the phones, household machines like washing machines, etc.

Tejas: These are very small computers which cannot be programmed but are meant to help in the operation of these devices.

Moz: These are called embedded application. [1] embedded application

Late 20th century - Networking, Smart phones and FOSS

Tejas: We have also collected some information about the history of networking and related technologies that revolutionized many aspects of our daily life like communication, buying tickets, banking, information and much more.

Info

Networking

Networking	On the evening of October 29, 1969 the first data travelled between two nodes of the ARPANET, a key ancestor of the Internet. The men who symbolically turned the key on the connected world we know today were two young programmers, Charley Kline at UCLA and Bill Duvall at SRI in Northern California, using special equipment made by BBN in Cambridge, Massachusetts.
Internet 	In 1977 Cerf and Kahn successfully linked three networks in a dramatic round-the-world transmission from a cruising van. The Internet was born.
Inventing the Web, major milestones	1.At the world's biggest physics laboratory, CERN in Switzerland, English programmer and physicist Tim Berners-Lee created "WorldWideWeb" on an advanced NeXT computer in 1990. It featured a server, HTML, URLs, and the first browser. This browser also functioned as an editor, like a word processor connected to the Internet – which reflected his original vision that the Web also incorporate authoring and personal organization tools. 2.The world's first popular browser, one of the first graphical web browsers Andreesen's Mosaic (later Netscape)– led to an explosion in web use in 1993, made the World Wide Web system easy to use and more accessible to the average person and sparked the Internet boom of the 1990s.
Web browsers 	**1994 :** Netscape navigator **1995 :** Microsoft released its Internet Explorer **1996 :** Opera focused on mobile phone web browsers and was preinstalled on over 40 million phones. It is also available on embedded systems and Nintendo's In WII games console. **1998 :** Netscape launched Mozilla foundation to provide a competitive open source web browser which has led to the current firefox. **2003 :** Apple's safari was released **2009 :** Google's Chrome
Search engines	Early search engines: 1990 Archie, 1991 Veronica and Jughead 1992 Vlib (Berners and Lee), 1993 Excite (Stanford undergrads), Aliweb (Martijn Korster). Some of the popular search engines: 1994 Altavista, Yahoo, webcrawler; 1996 Google, Hotbot, Ask jeeves; 1998 MSN. Many more came in later. Some of the latest additions are as follows: 2009-2010 Cuil (Managed by previous google employees), Bing (MSN's live search).

[1] The embedded application on a small computer, embedded in a device control some of the functions on the device.

Info

Services on Internet

Email	**1972 :** Ray Tomlinson who worked as an ARPANET contractor is credited with inventing email in 1972. He picked the @ symbol from the computer keyboard to denote sending messages from one computer to another (name-of-the-user@name-of-the-computer). Current count of email users internationationally is more than 600 million.
Video conferencing	**1990 :** Ericsson company initiated video conferencing services which was adopted initially by business firms all over the world.
CHAT	**1988 :** Internet Relay Chat was introduced and it did not take long to become popular. Soon, other varieties of chat like voice and video chat evolved.
E-Commerce	**1960 :** E-commerce services (buying and selling of products) evolved from the development of EDI or Electronic Data Exchange technology.

Jyoti: Another important part of the computer technology is Open Source. Professionals and hobbyists improve on the Open Source operating systems, applications and information.
Tejas: We too can contribute content on Internet. Isn't this exciting?

Info

Linux (Open source operating system)

Torvald released his Linux operating system in 1994. A global community of professionals and hobbyists has continually improved it. Academicians, corporations, businesses, governments and many more users have adopted it.
Later on, many flavors of linux evolved, a few of which are Suse, Fedora, Ubuntu, Android for mobiles.

Jyoti: Games on computers have interesting history.

Info

Games

1952: Tic-Tac-Toe	Donald Davies a computer researcher designed a machine to play Naughts and crosses or Tic-Tac-Toe. Davies later became an important pioneer in artificial intelligence (AI) which is used in designing games.
1958: Tennis for Two	William Higinbotham created the first video game called "Tennis for Two," which was created and played on a Brookhaven National Laboratory oscilloscope.
1962: SpaceWar	Steve Russell invented the first computer game SpaceWar on a MIT PDP-1 Mainframe computer. Interactive personal computing started after this invention as it ignited interest in programming on college campuses, pushed the limits of technology.

Tejas: Currently (2011) we have very advanced smart phones which have many features available on a computer. For example we can browse Internet, check email, play games. Smart phones of today date back to 1992.

Info

Smartphones

1992: The first smartphone IBM Simon was designed in 1992 and released in 1993. It also contained a calendar, address book, world clock, calculator, note pad, e-mail client, the ability to send and receive faxes and games. It had no physical buttons, instead customers used a touchscreen to select telephone numbers with a finger or create facsimiles and memos with an optional stylus. Text was entered with a unique on-screen "predictive" (as one types the words are predicted and select the word) keyboard.

Moz: Good. You have covered the history of computers from Abacus to Smartphones.

Jyoti: We enjoyed reading about the history of computers and collecting important information for the presentation.

Moz: History teaches you not only how things were made but also how you can innovate and invent. Chin Chinaki...



Learning Outcome

At the end of the lesson, you will be able to:

- List major milestones in the development of modern day computers and Internet.
- List names of person responsible for development of computer and related technologies

WORKSHEETS



1. Given are some of the devices used for calculation. Can you arrange them in sequence of which appeared first?

Palmtop	Abacus	ENIAC
Pebbles	Napier bones	Punched card reader
Desktop	Laptop	Pascaline

2. Explain the factors which resulted in the inventions of devices like Napier bones, slide rule in the 16th century.

3. Pick the right options.

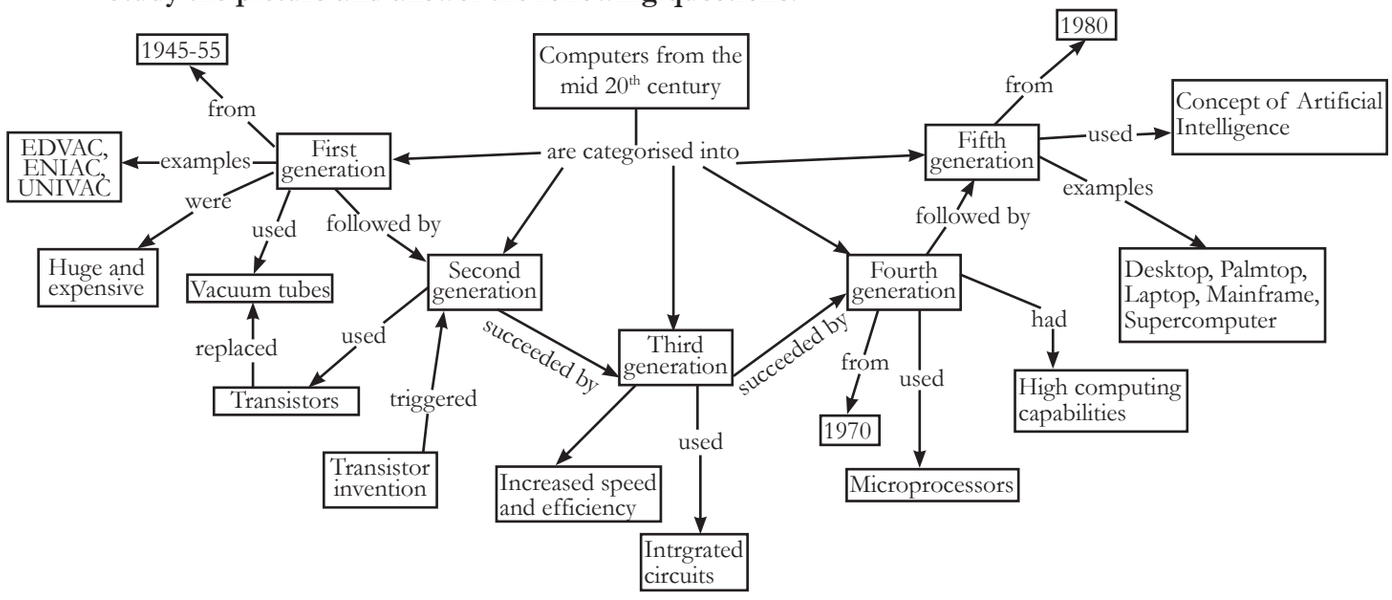
I. Which one is not true about the fourth generation computers?
 a. These are cheaper.
 b. They are compact.
 c. They are reliable.
 d. They use transistors.

II. Which are the features of embedded devices?
 i. They are used in phones and washing machines.
 ii. They can control multiple devices.
 iii. They are small in size.
 iv. User can do programming with them.

 a. Both i & ii b. Both i & iii c. Both ii & iv d. Both iii & iv

4. List some advantages of fifth generation computers compared to the other generation computers.

5. Here is a picture which tells about the history of computers from mid twentieth century. Study the picture and answer the following questions.



a. From the figure can you tell which was the technology used in the first, second, third, fourth and fifth generation computers?

b. Name two first generation computers.

c. Which invention resulted in the evolution of Second generation computer?

d. Give some examples of fifth generation computers.

6. The recall icon in this lesson indicates a few places where concepts from previous levels are being applied.

a. Identify one more connect box in the lesson and justify your answer.



ACTIVITY

1. **Select one of the following set of URLs and read the information on the website. Write three questions that test the knowledge of a student who has read the information on the selected website.**
 - http://www.csc.liv.ac.uk/~ped/teachadmin/histsci/htmlform/lect1.html
 - http://www.computersciencelab.com/ComputerHistory/History.htm
 - http://www.merchantos.com/articles/informational/the-history-of-the-computer/
 - http://www.computerhistory.org/timeline/?category=cmptr
 - http://www.hitmill.com/computers/computerhx1.html
 - http://www.inmagine.com/searchterms/abacus.html
 - http://www.fotosearch.com/photos-images/slide-rule.html
 - http://en.wikipedia.org/wiki/Stepped_Reckoner
 - http://en.wikipedia.org/wiki/Jacquard_loom
2. **Prepare a table of the information about developments in the field of computer over the period of time. Arrange the list chronologically as per the year in which it was developed. Include all the details about the invention such as the developer, purpose of use. Exchange it with your partner to find out if your table matches.**
3. **Find images of the machines that were invented prior to the present day personal computers. Prepare a collage using the same.**
4. **Select one of the following and describe the history of its development.**
 - Cell phone
 - Television
 - Internet
 - Email
 - Social networking

 The following questions would help you:

 When was it invented and by whom? For what purpose was it invented? Is the purpose for which it is used today different from what it was initially designed for? Can you include pictures that depict the different stages of its developments?

Group activity

5. Students act out as computers of different period of time. One student acts as ENIAC, one as Abacus and so on. This way cover all the historical developments included in the lesson such as Pascaline, Napier bones, slide rules, analytic machine, punched card, Hollerith disk upto the present day embedded computers in cell phones and PDA. Now act out a skit where you share with the class details about when you were invented, who invented you and for what purpose you were used. After each character has acted out her part, the teacher can quiz the class on the details of the different machines that form the history of computers.



1. Find out when the first super computer was made in India. What was it called? For what purpose was it used?

Teacher's Corner

- The objective of this lesson is to inform the students about the milestones that led to the development of modern day computers. The rationale is that students are able to appreciate the efforts that have been made in the past to make the present day convenience available to them.
- You can begin with a virtual tour to the computer history museum (URL:insert from further reading) to take the students through the major developments. You can highlight that simultaneous developments have occurred in different locations, so it is possible that more than one person may be given a credit for a particular development.
- Summarize the major developments, year and person responsible for development by referring the info boxes of the lesson. You can use the Web quest strategy to allow students to collect information about major development and gather information from selected URLs. (See activity 1). This will maintain the interest level of students and motivate them to learn on their own. Ask students to do worksheet question 5 in the class. Students already know how to read the concept map. If required, help them read it and answer the worksheet questions. You can give worksheet questions 1 to 4 as homework.
- The present generation of students are born in an era where Internet connectivity is taken for granted. Encourage students to imagine what would be the difference in absence of these technologies. Inform them about the factors that led to the development of Internet and related technology. Summarize by saying that history teaches us not only about how things were made but also the process of innovation and invention.
- Students enjoy playing computer games, but are seldom aware of the history of its development. Refer the info box on games to tell them about its history. Now encourage students to find out about history of their favourite games.
- Most students would have seen and/or used Smart phone and may be aware of its functionalities. You can demonstrate a simulation of a smart phone to the class and tell them about the history of its development.
- Summarize the lesson and ask the students to do activity 5 (group activity) to reinforce learning of the topic.

Further Reading:
http://www.computerhistory.org/
http://www.cbi.umn.edu/hostedpublications/Tomash/index.htm
http://www.computersciencelab.com/ComputerHistory/History.htm

9 Introduction to FOSS

Aim: In this lesson, you will learn:
- To find an application for a given purpose.
- To independently explore its features.



Tejas: I saw my friend's sister preparing a brochure. She said that she is using a FOSS desktop publishing software. She also told us that she learnt to use the application on her own by exploring its features. What is **FOSS**?

Moz: FOSS stands for *Free and Open Source Software*. You have been using many FOSS applications like Open Office, educational games and multimedia applications.

Jyoti: Yes. We used these applications for project reports and presentations at competitions.

Tejas: These applications were available on all the computers in the lab. Our teacher downloaded and shared the application with us. We could also install these applications at home.

Moz: You have already given two parts of the definition of FOSS. One is freedom to use the application for your purposes and the second is freedom to share the application with others. There are two more parts to the definition. To understand these, recall what a program code looks like from BASIC and Scratch. [1] Program

Jyoti: Yes.

Moz: Every application is written in some programming language. The program code of the application is called the **source code**. Now, suppose you want a feature in Open Office word processor which is not available, then you can modify the source code of the application to add the feature. You can also distribute the modified application to others. Freedom to modify and freedom to distribute an application are the third and fourth parts of the FOSS definition.

[1] Sequence of instruction given to a computer is called a program.

Concept

FOSS concept

Free software is about the users' freedom to run, copy, distribute, study, change and improve the software. More precisely, it means that the program's users have the four essential freedoms:
The freedom to run the program, for any purpose (freedom 0).
The freedom to study how the program works, and change it to make it do what you wish (freedom 1). Access to the source code is essential for this. Providing access to the source code is called **Open Source**.
The freedom to redistribute copies so you can help your neighbor (freedom 2).
The freedom to distribute copies of your modified versions to others (freedom 3). By doing this you can give the whole community a chance to benefit from your changes.

Jyoti: How do we know how to install and use the features of an application?
Moz: Notes and guidelines for installation and using features of application are provided. These guidelines are called documentation. Sometimes users of FOSS applications put up tutorials on using the software. You will learn more about user forums later.

Info

Using FOSS applications

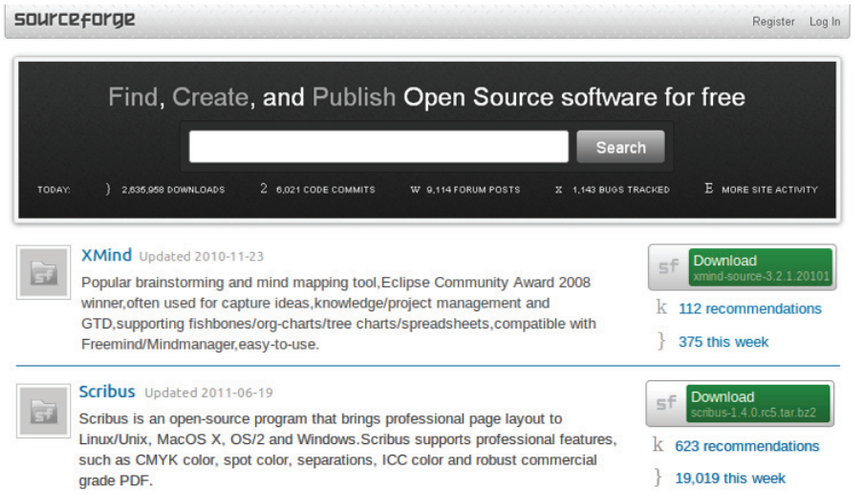
Installation
- Many FOSS applications are available for download.
- Different distributions are available for different Operating Sytems. (Example: Open Office is available for Ubuntu and Windows OS).

Documentation
- Is usually available for
 - Installation
 - Usage of features
- Other help links that can be searched for are: tutorials, sample problems and solutions and application output samples.
- Some applications may also provide the documentation under the Help menu.

Troubleshooting
- For clarifications on application, Frequently Asked Question (FAQ) section is generally available at the application originating website.
- Queries can be uploaded at user forum of the application.

Moz: You have used many FOSS applications in earlier lessons. Now you will learn to explore an application's features on your own. Suppose you want to create a mindmap, you can find the application by searching Source Forge or Query on Google 'FOSS Mindmap Application'.

1 Searching the Internet



1 Search engines provide a list of links to websites based on some keywords provided by the user. Find the sites that suit the purpose and download information, applications or just read the content. Apply the AWARE rules for responsible use of Internet resources.

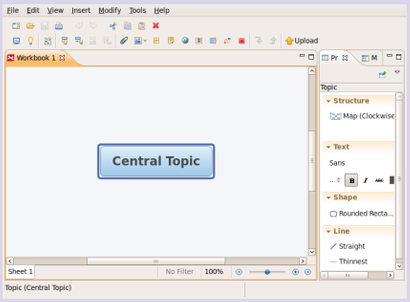
Explore Xmind

XMind, is an open source brainstorming and mind mapping software application.
Recall that, brainstorming is a strategy for generating ideas and a mind map is used to visualize, structure, and classify ideas. In a mind map the ideas that are generated during a brain storming session are arranged around a central idea or key word.

Skill

Xmind: Getting started

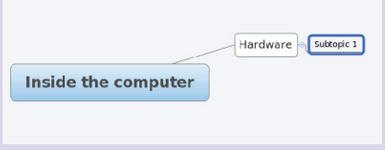
Use the path Applications--> Office --> Xmind to open this application. It opens an empty workbook, with a placeholder for the central idea or topic. To rename the 'Central Topic', select it and type in the required name.



To add a 'Main Topic', select the 'Central topic' and press 'Enter' (You can also use 'Insert' option on the menu bar to add a main topic).



Select and rename the 'Main Topic1' as per the requirement. To add a subtopic press 'Tab' key.



To insert a topic in the:

1. Same level - Select a topic and Press 'Enter' key.
2. Sub-level - Select a topic and press 'Tab' key.

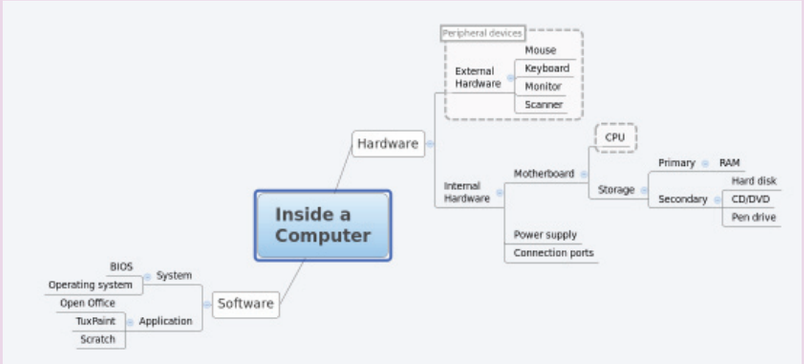
Guidelines

Using Xmind

In the mind map, you can add:

- Notes and pictures to your ideas.
- Boundaries to various sections.
- Relationship lines between ideas.

A mind map for 'Inside a computer' drawn using Xmind, is shown below.



Assignments: Thinking Process Skills

Using Xmind, draw a mind map which shows the parts and their functions of a plant cell.

Application of thinking process skills is important for any activity, for example apply systematic gathering of information, step wise thinking and logical reasoning, to select content and draw the mindmap and also for the news letters in the next assignment.

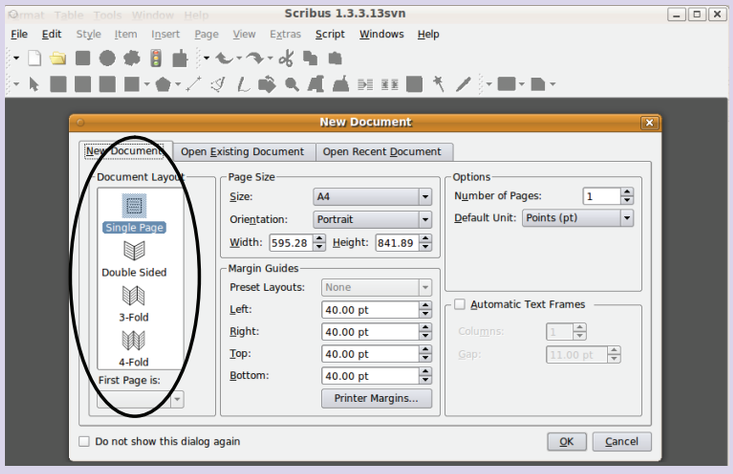
Explore Scribus

Unleash your creativity, while exploring Scribus, to design a page layout for a newsletter. This is a Desktop Publishing (DTP) application, used to design page layout of the content. (Example: Newspaper, Magazines, Brochures, Newsletters).
An online manual is available at *http://docs.scribus.net*

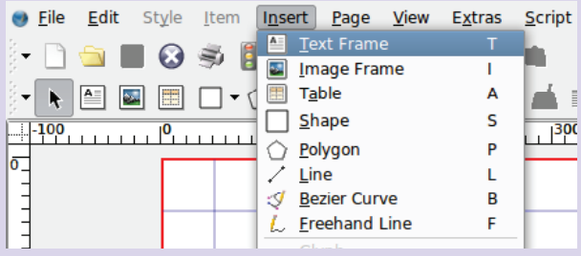
Skill

Scribus: Getting started

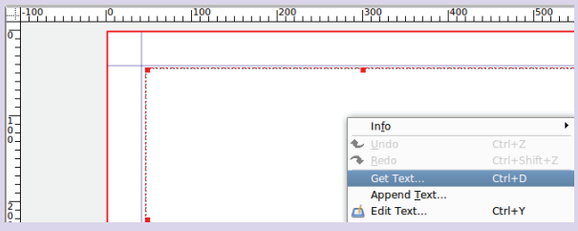
1. Use the path Applications--> Graphics --> Scribus. Select the required settings for document layout, page orientation and size, margin size etc. Then click OK.



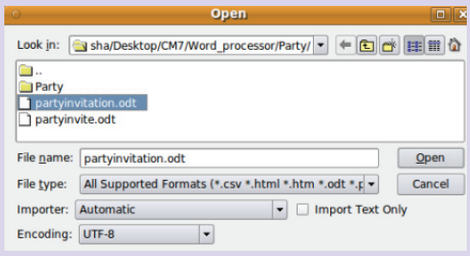
2. The document is opened with the selected settings. Insert a text or image frame to add content to the document. In a text frame you can insert only text, while image frame is for inserting images in the document.



3. Right click on the text frame to insert the text. You can type in or paste already typed text. You can even insert files into the text frame. Similarly, you can insert images into the image frame.



4. Click on 'Get Text', a pop up window is displayed. Browse and select the required file and click Open.



5. The text in the selected file is inserted in the text frame.



Using Scribus

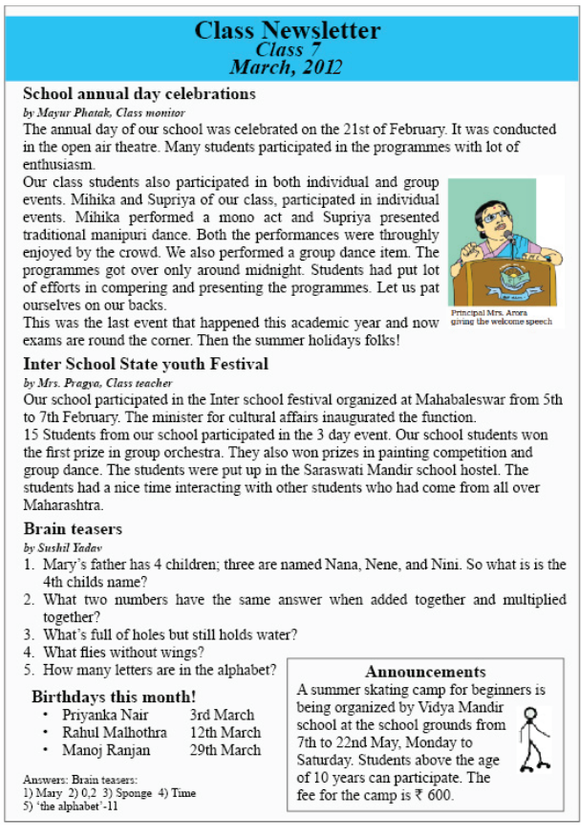
Guidelines

For using the application:

- Keep all the content and images ready in a directory.
- Plan the design of the page, on paper.
- Text frames are required for content in text format and image frames are required for images. Check these and other options available under insert submenu.
- Populate the content as per the design. Note that you may have to resize the images, Font sizes etc.

Assignments:

- Design the newsletter page layout using one of the two sample formats given below. Use the content of Newsletter that you have prepared in the lesson 3.
- Compare features of Word processor and Scribus to create a newsletter.



Class Newsletter
Class 7
March, 2012

School annual day celebrations

by Mayur Phatak, Class monitor

The annual day of our school was celebrated on the 21st of February. It was conducted in the open air theatre. Many students participated in the programmes with lot of enthusiasm.

Our class students also participated in both individual and group events. Mihika and Supriya of our class, participated in individual events. Mihika performed a mono act and Supriya presented traditional manipuri dance. Both the performances were throughly enjoyed by the crowd. We also performed a group dance item. The programmes got over only around midnight. Students had put lot of efforts in compering and presenting the programmes. Let us pat ourselves on our backs.

Principal Mrs. Arora giving the welcome speech

This was the last event that happened this academic year and now exams are round the corner. Then the summer holidays folks!

Inter School State youth Festival

by Mrs. Pragya, Class teacher

Our school participated in the Inter school festival organized at Mahabaleswar from 5th to 7th February. The minister for cultural affairs inaugurated the function.

15 Students from our school participated in the 3 day event. Our school students won the first prize in group orchestra. They also won prizes in painting competition and group dance. The students were put up in the Saraswati Mandir school hostel. The students had a nice time interacting with other students who had come from all over Maharashtra.

Brain teasers

by Sushil Yadav

1. Mary's father has 4 children; three are named Nana, Nene, and Nini. So what is is the 4th childs name?
2. What two numbers have the same answer when added together and multiplied together?
3. What's full of holes but still holds water?
4. What flies without wings?
5. How many letters are in the alphabet?

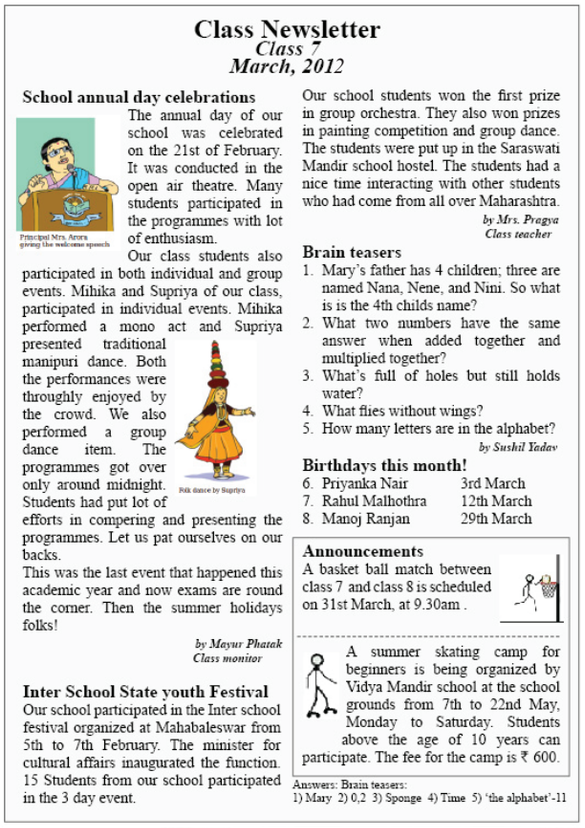
Birthdays this month!

- Priyanka Nair 3rd March
- Rahul Malhothra 12th March
- Manoj Ranjan 29th March

Announcements

A summer skating camp for beginners is being organized by Vidya Mandir school at the school grounds from 7th to 22nd May, Monday to Saturday. Students above the age of 10 years can participate. The fee for the camp is ₹ 600.

Answers: Brain teasers:
1) Mary 2) 0,2 3) Sponge 4) Time
5) 'the alphabet' -11



Class Newsletter
Class 7
March, 2012

School annual day celebrations

Principal Mrs. Arora giving the welcome speech

The annual day of our school was celebrated on the 21st of February. It was conducted in the open air theatre. Many students participated in the programmes with lot of enthusiasm.

Our class students also participated in both individual and group events. Mihika and Supriya of our class, participated in individual events. Mihika performed a mono act and Supriya presented traditional manipuri dance. Both the performances were throughly enjoyed by the crowd. We also performed a group dance item. The programmes got over only around midnight. Students had put lot of efforts in compering and presenting the programmes. Let us pat ourselves on our backs.

Folk dance by Supriya

This was the last event that happened this academic year and now exams are round the corner. Then the summer holidays folks!

by Mayur Phatak
Class monitor

Inter School State youth Festival

Our school participated in the Inter school festival organized at Mahabaleswar from 5th to 7th February. The minister for cultural affairs inaugurated the function.

15 Students from our school participated in the 3 day event.

Our school students won the first prize in group orchestra. They also won prizes in painting competition and group dance. The students were put up in the Saraswati Mandir school hostel. The students had a nice time interacting with other students who had come from all over Maharashtra.

by Mrs. Pragya
Class teacher

Brain teasers

1. Mary's father has 4 children; three are named Nana, Nene, and Nini. So what is is the 4th childs name?
2. What two numbers have the same answer when added together and multiplied together?
3. What's full of holes but still holds water?
4. What flies without wings?
5. How many letters are in the alphabet?

by Sushil Yadav

Birthdays this month!

6. Priyanka Nair 3rd March
7. Rahul Malhothra 12th March
8. Manoj Ranjan 29th March

Announcements

A basket ball match between class 7 and class 8 is scheduled on 31st March, at 9.30am .

A summer skating camp for beginners is being organized by Vidya Mandir school at the school grounds from 7th to 22nd May, Monday to Saturday. Students above the age of 10 years can participate. The fee for the camp is ₹ 600.

Answers: Brain teasers:
1) Mary 2) 0,2 3) Sponge 4) Time 5) 'the alphabet' -11



Learning Outcome

At the end of this lesson, you will be able to:

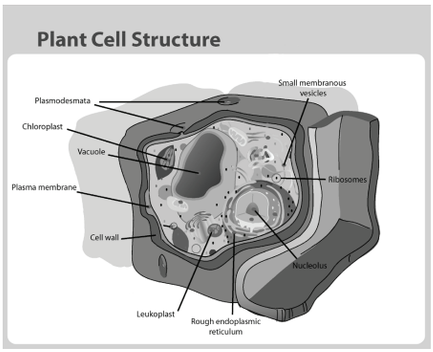
- Surf the Internet and find a suitable FOSS application for a given purpose.
- Independently explore the features of the application.



ACTIVITY

1. **Plant cell (Parts and functions) - Mind Map**

 Using Xmind, draw a mind map which shows the parts and their functions of a plant cell. (Refer the pg. 104 for details on drawing a mind map using Xmind application).



2. **Internet Safety measures flyer for parents.**
 Use Scribus to create a flyer for parents informing them about Internet safety measures. (Refer Internet Safty Rules- SMART, pg. 131).

3. **Invitation for your grandfather's 60th birthday. There are many free online tools to create birthday cards. Some of them are:**
 http://www.thepcmanwebsite.com/cards_birthday.shtml
 http://dltk-cards.com/cc1.asp
 http://www.mescards.com/
 - Use one of the free tools to create a greeting card for your grandfather's 60th birthday.
 - Select the design elements of the card: background, colour, text Font, template, size, shape.
 - Write a catchy message (You aren't really 60. Ex: Just 21 with 39 years experience!).
 - Save the card / Print the card and send it to your grandfather.

 Note for the teacher: This project requires application of skills learnt in Image editing, Word processing and FOSS lesson.

4. **You have created a newsletter using word processor (Pg.52) and Scribus (Pg.107). Compare your experience including pros and cons of the two applications for creating newsletter in the following table.**

Features	Word Processor	Scribus

5. **The recall icon in this lesson indicates a few places where concepts from previous levels are being applied.**
 a. Identify one more connect box in the lesson and justify your answer.



1. List five websites from where you can download educational resources for your class.
2. Find free application of the following :
 Accounting, Video Editing, Classroom Management.

Teacher's Corner

Level VII

Lesson 9

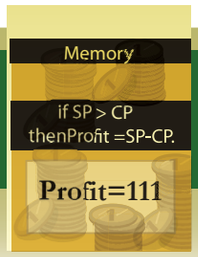
- The objective of the lesson is to find a FOSS application for a purpose and explore independently (or in groups) the features available in the application. The objective of this lesson is to provide students an exposure to free and open source applications. Two applications – XMind and Scribus are selected for this purpose. The former is a mind mapping software, and later is a desktop publishing software.
- Begin the class by asking students to name some of the applications they have used. They may say open office writer, impress, Firefox, etc. Now ask them if they have seen same software in other computers, at home or elsewhere. They may mention about other kinds of applications such as power point, Internet explorer, etc. Tell to them that applications can be proprietary or open source. Explain what proprietary and open source means. Emphasize the importance of using FOSS applications and rationale for the same.
- Give a demonstration of how to search for FOSS application to meet their requirement. You can open the source forge website and give the demo as indicated in the lesson.
- You can ask the students what kind of software they want to search for. They may come with varied answers. List them on the board. Now tell them that let us search for some tool that can be used to draw mind maps. Use this opportunity to revise the concept of mind map. Enter the keyword and most likely you will see xmind application. Students already know what download means. Click on the options and demonstrate how the application is downloaded. Now give a demonstration of how to install the application. Tell them that typically a wizard will take them through the process and mostly clicking on next button will ensure that the application is installed.
- Open the installed application and ask students to observe the different options. Encourage the students to explore the features on their own and create a mind map. You can instruct the students to create a mind map of the topic 'inside the computer' as indicated in the lesson.
- You can get one student to search for FOSS desktop publishing tool. Get that student to download and install it. It is powerful for students to know that one amongst them can also do this task . You can get the students to work on the newsletter assignment indicated in the lesson. Note that the teacher is not supposed to teach specific skills associated with using this application. Rather what is important is that students learn to search for a FOSS application to meet their requirement, download and install it. It is assumed that by now, students would be able to explore features of the application and learn to use it on their own. Summarize the lesson, revise the concept of FOSS, how to search for FOSS applications.
- Emphasize the value of using FOSS application.

Further Reading:

http://www.fossweb.com/
http://www.schoolforge.net/education-software
http://www.nhste.org/linux.cfm
http://www.slideshare.net/bluesmoon/why-foss-in-education-makes-sense

Notes:

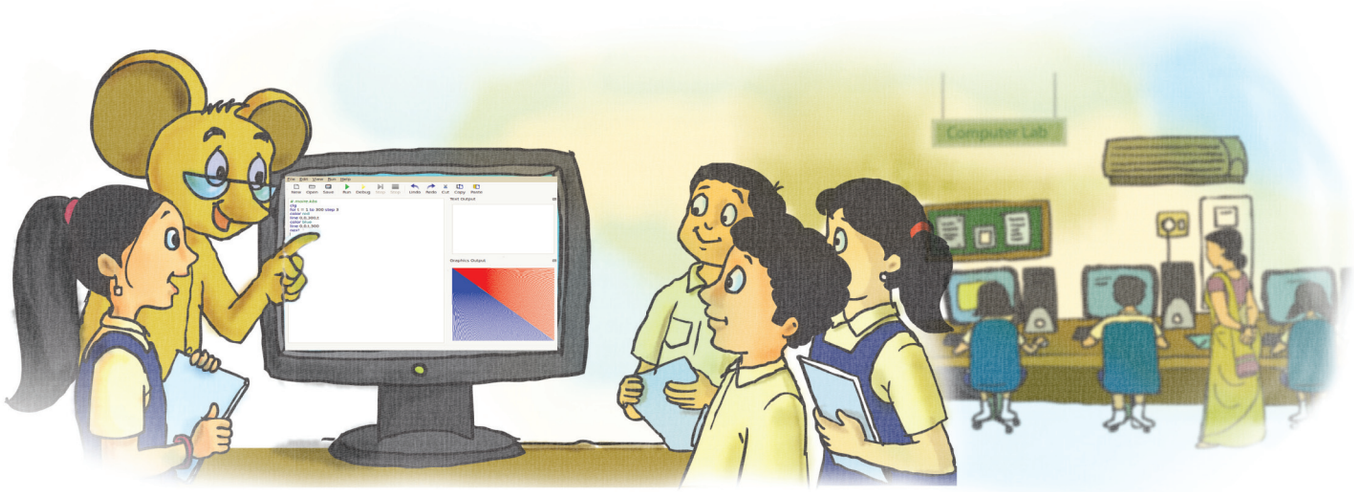
10



BASIC Programming: Control and Repetition

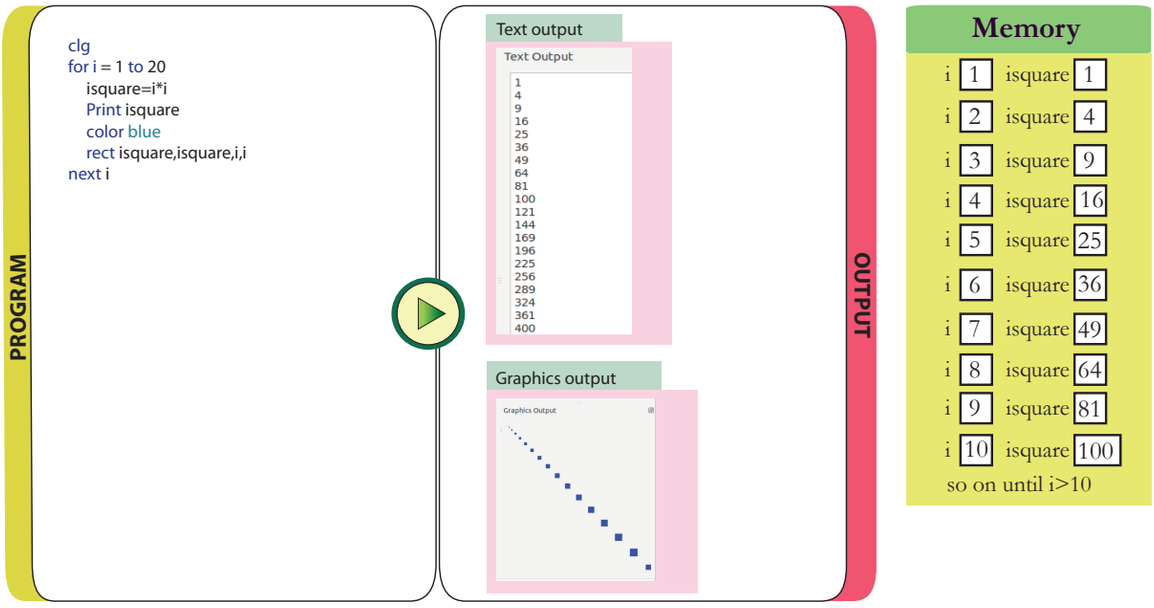
Aim: In this lesson, you will learn:

- Control the execution of a program.
- Repeat and decision making statements.
- Managing lists with arrays.



Jyoti [after seeing the interesting graphics]: Using a repetitive mathematical sequence, we can easily draw interesting patterns.

Moz: Yes. Execute the program below, step by step, and understand how a sequence starts, is repeated and ends. This program uses the **for** statement.



Tejas: First the graphics output screen and the text output screen are cleared.

Jyoti: The variable *i* is assigned the value 1 at the start of the repetition. [Memory i = 1]

Tejas: The sequence to be repeated starts. Square of *i* is calculated and assigned to *isquare*. Then *isquare* is printed in text output area. [Memory isquare = 1]

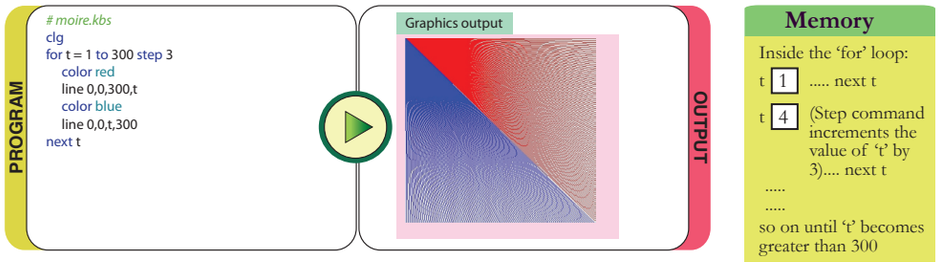
Jyoti: *isquare* is used for *x* and *y* coordinates in the rectangle statement. The length and breadth of the rectangle is set to *i*. A rectangle is output in the graphics output area. **Rect** 1,1,1,1

Tejas: Next *i* is incremented by *1*. The sequence is repeated till *i = 20*. When *i>20* the repetition stops. [Memory i = 2 i=20]

Moz: Very good. You have explained the **repetition** sequence very well.

Jyoti: Instead of incrementing the value of *i* by 1 is it possible to increment *i* by more than one?

Moz: Yes. You can. For example you can write the repetition statement as follows:



Tejas: Wow. What a pattern!

Moz: Change the **step** to *100* and see the effect.

Jyoti: When the step is incremented by *100*, the sequence is repeated 3 times. 3 lines of blue and 3 lines of red are drawn.

Moz: Yes. Instead of incrementing by 1, the **repetition count** is incremented by the **step**.

Info

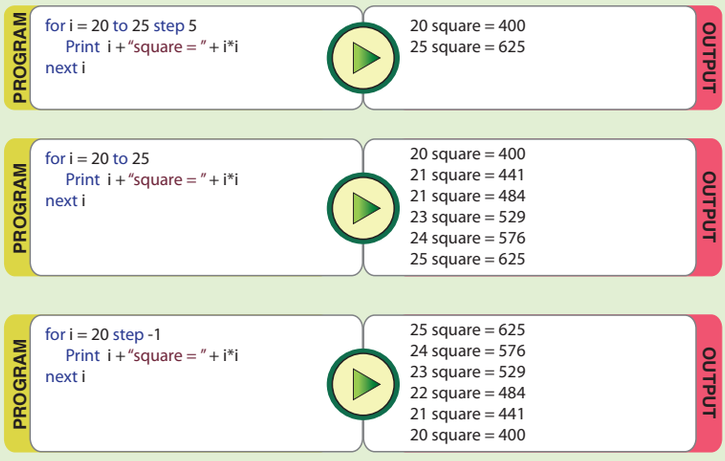
Repetition of a block of statements - For statement

Syntax

for *variable = expr1* to *expr2*
statement(s)
next *variable*

for *variable = expr1* to *expr2* step *expr3*
statement(s)
next *variable*

- *For* statement, executes a specified block of code a specified number of times, and keeps track of the value of the *variable*.
- At the start of execution of for loop, variable is assigned the value of *expr1 and the specified block is executed*.
- if *step* is not specified, variable will be incremented by *1 for the second and subsequent repetition of the specified block*.
- *If step is specified*, variable will be incremented by *expr3 for the second and subsequent repetition of the specified block*.
- *For* loop t*erminates* when the value of variable *exceeds expr2*.

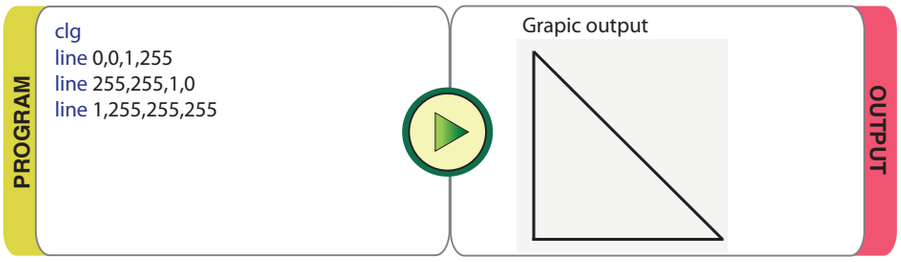


Tejas: The **line** statement has generated interesting graphics.

Moz: Right. Look at the lines closely in the output of the program *moire.kbs*.

Jyoti: They look crooked. The computer is not able to draw straight lines. The pattern looks like the print on our table cloth at home.

Moz: You are right. These patterns are used in textiles. The pattern is generated because the computer cannot display perfectly straight lines. It approximates a straight line by drawing the pixels in a stair step fashion. Such patterns are called **moire patterns**.



Info

Graphics – Drawing a line: line statement

Syntax

line *start_x*, *start_y*, *finish_x*, *finish_y*

Draw a line one pixel wide from the starting point to the ending point, using the current color.

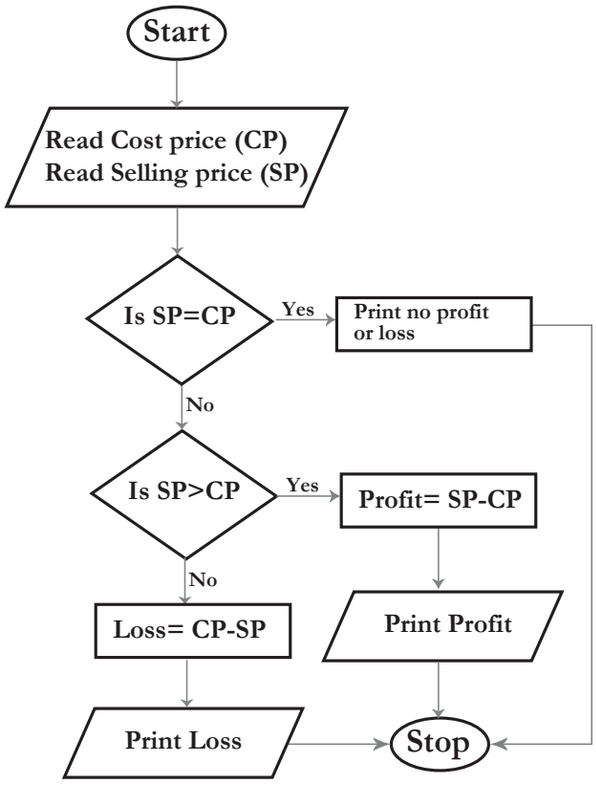


Jyoti: I want to write a program for the Profit and Loss flowchart. What is the syntax of **If** statement in Basic? 1 Scratch conditions

Tejas: Let us create a flowchart for writing a program to calculate profit and loss.

The flowchart written by Tejas and Jyoti.

Flowchart: How to find profit or loss



Tejas: The flowchart does not show what should be done if both CP and SP are equal. Let us use the else statement to take care of this condition.

Moz: Good. You must take care of all the conditions that are possible.

Jyoti: We can use comparison operators to compare CP and SP and find if it is profit, loss or the values are equal.

1 if and if-else statements are used to check for a condition in a program. If the condition is true the set of instructions after if are executed. Otherwise, the set of instructions after else are executed.

The program written by Tejas and Jyoti.

PROG RAM

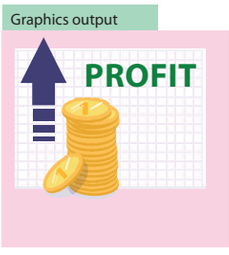
```
cls
clg
Input "What is the cost price ", CP
Input "What is the selling price ", SP
#When there is no profit or loss
If SP=CP
    Print "There is no profit or loss."
Endif
#To calculate the profit
If SP>CP then
    profit = SP-CP
    Print "The transaction has given a profit of
    Rs. "+profit
    imgload 150,150,"profit.png"
    Color Green
# font font_name, size_in_point, weight
#font statement sets the font_name
(ex: tahoma, verdana), size of the font (height
of text 72 points in an inch), weight of the
font  (how dark the letter should be,
number from 1 to 100 (can use 25 for
light, 50 for normal and 75 for bold) for
the next text statement which is used to
write text on the graphics output area.
    font "Tahoma", 33,100
#text x, y, expression
#text statement draws the contents
of the expression using the last font statement,
on the graphics output area, with it's top left
corner specified by the x and y coordinates.
    text 0,150,"PROFIT"
Endif
#To calculate the loss
If SP<CP then
    loss= CP-SP
    Print "The transaction has resulted loss
    of Rs. " +loss
    imgload 150,150,"loss.png"
    Color Green
    font "Tahoma", 33,100
   text 0,150,"LOSS"
Endif
```

OUTPUT

Text output

```
What is the cost price? 876
What is the selling price? 987
The transaction has given you profit of Rs.
111
```

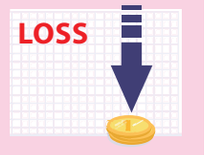
Graphics output



Text output

```
Text Output
What is the cost price? 567
What is the selling price? 500
The transaction has resulted in loss of Rs.
67
```

Graphics output



Memory

CP	876
SP	987
Profit	111

Memory

CP	567
SP	500
Loss	67

Info

Decisions – Execution branching: If, if-else statement

Syntax

if *condition* then *statement(s)* end if	if *condition* then *statement(s)* else *statement(s)* end if

- The *if* statement allows you to control if a program executes a section of code or not, based on whether a given condition is true or false.
- The condition which is also referred to as boolean condition can contain comparison operators or logical operators. (A table of the operators is given separately). The evaluation of the condition is either true or false.
- At the start of the execution of *if* statement the *condition* is evaluated.
 - If the condition is *true* the block of statements following then are executed.
 - If the condition is *false*, the execution continues either in the else block (which is usually optional), or if there is no else branch, then the execution continues after the *end if*.
- It is often customary to indent the statements within the *if* or else block.

PROGRAM

```
cls
input " What is your age ", myage
input " What is your friend's age? ",
friendage
if  myage = friendage then
    Print  "You and your friend of same age"
endif
```

OUTPUT

```
What is your age 13
What is your friend's age?
14
```

PROGRAM

```
mynumber = 87
input " First number ", firstnumber
input " Second number", secondnumber
if  (mynumber>=firstnumber ) and
(mynumber<=secondnumber) then
    Print  " Computerji: Yes "
```

OUTPUT

```
First Number 35
Second number 90
Computerji: Yes
```

Comparison Operators

In a program, we often need to compare two values to decide what to do. A comparison operator (ex: <, >, <=) works with two values and returns true or false based on the result of the comparison.

Info

Comparison operators

Comparative operators	Description	Example
expr1 < expr2	Evaluates to True if value of expr1 is less than value of expr2, else to False.	2<4 is True
expr1 > expr2	Evaluates to True if value of expr1 is greater than value of expr2, else to False.	(2+5)>(3+4) is False
expr1 = expr2	Evaluates to True if value of expr1 is equal to value of expr2 else to False.	298=298 is True
expr1 >= expr2	Evaluates to True if value of expr1 is greater than or equal to value of expr2, else to False.	2>=4 is False
expr1 <= expr2	Evaluates to True if value of expr1 is less than or equal to value of expr2, else to False.	2<=4 is True
expr1 <> expr2	Evaluates to True if value of expr1 is not equal to value of expr2 else to False.	2<>4 is True

Jyoti: Let us see if we can display an image in the graphics output area. I have drawn images for profit and loss.

Tejas: We can use imgload. This is very easy we have to just provide x, y coordinates where we want the image displayed and the image file name. Let us also check how to display a caption for the image in graphics area.

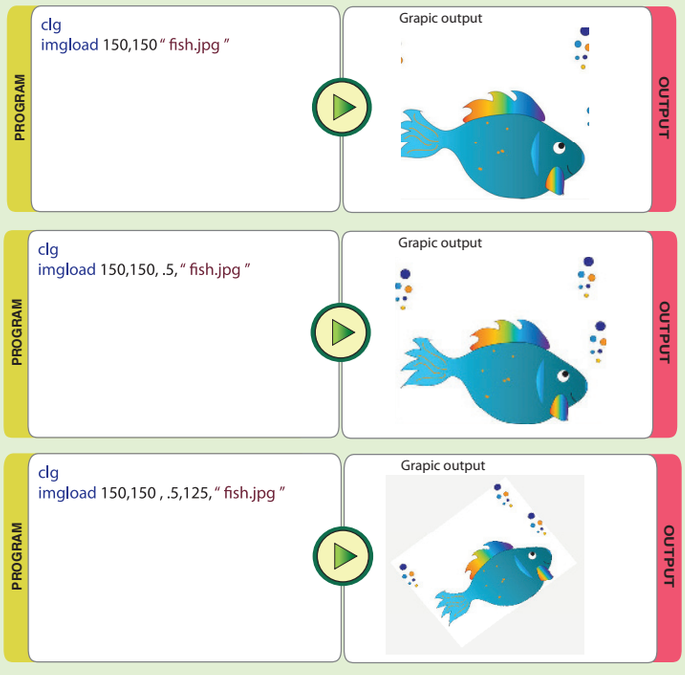
Jyoti: Displaying text also has similar syntax to imgload. In place of file name we have to provide the text in quotes.

Info

Graphics – Loading an image imgload statement

Syntax
imgload *x*, *y*, *filename*
imgload *x*, *y*, *scale*, *filename*
imgload *x*, *y*, *scale*, *rotation*, *filename*

- Imgload reads the image in the file specified in the *filename* and displays it on the graphics output area. The x, y coordinates specify the location of the center of the image, where the image should be displayed in the graphics output area.
- Many of the image file formats are recognized by the program. Some of these formats are *bmp, png, gif, jpg* and *jpeg*.
- *Scaling* and rotation is optional.
 - Scaling is used to resize the image. Note that scale is specified by the decimal scale where 1 is full size.
 - The image can be rotated around it's center by specifying how far to rotate by specifying the angle (0 to 360).



Array

Jyoti: I have a list of words. I want to use these to write a quiz program. Let us save these words and later on use them to prepare a quiz.

Tejas: We can define a list (called an **array**) as follows:

Dim array_name(*index*)

Dim array_name$(*index*)

Since our list will contain string values we have to add '$' at the end of the array name, similar to a string variable. We have to also specify the number of values the list will contain in the brackets.

Jyoti: The computer then has to reserve 5 memory locations for the array. The array name is adjectiv$. What is the name given to each location?

Moz: The computer names the 5 memory locations as adjectiv$(0), adjectiv$(1), adjectiv$(2), adjectiv$(3), adjectiv$(4). The number in the brackets is called an **index**.

Tejas: This is similar to one column in a spreadsheet.

Moz: Yes. Note that index starts with **'0'**, instead of **'1'**. Each item of an array is called the **element of the array**. The dim statement assigns an empty string **""** to each element in the array. This is called initializing the array.

Jyoti: What is the initialization value for a numeric array?

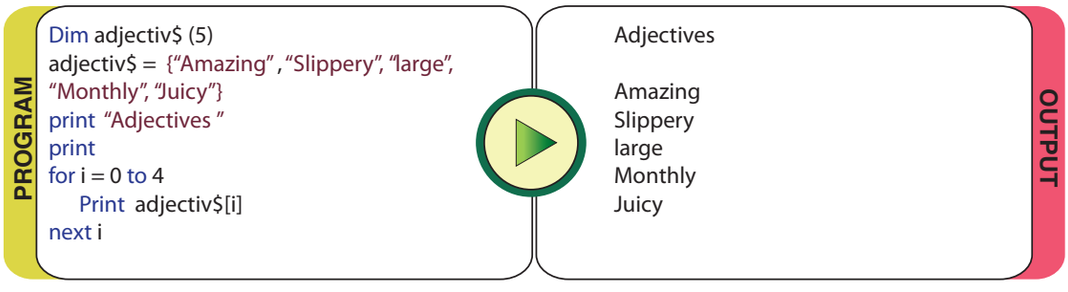
Moz: Each element of a numeric array is initialized with the value 0.



Jyoti: Let us now assign values to the array.



Tejas: Now let us retrieve the values and print them.

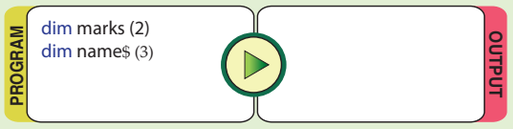


Info

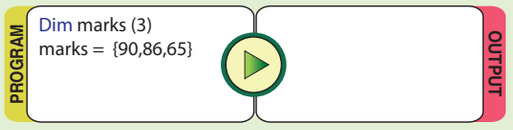
Creating a one dimensional array **Dim (*Index*)**

Syntax to create a one dimensional array
Dim array_name**(***index***)**
Dim array_name**$(***index***)**

- **Dim** statement creates an array in the computer's memory with the variable name provided in the array_name.
- Arrays can be either numeric or string. Syntax of naming of the array follows the same syntax as numeric and string variable name.
- The number of items in an array is specified by the index, which is always an integer value greater than 1, in the parenthesis.
- The **dim** statement initializes each element in the new array with either zero (0) if the array is a numeric array or empty string (""), if the array is a string array.

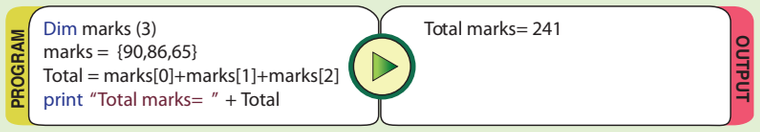


Memory	
marks	0
marks1	0
names$	" "

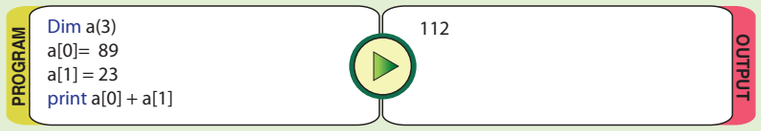


Memory	
marks0	90
marks1	86
marks2	65

Syntax to assign and to retrieve values of an array
array_name = {value1,value2,value3,.....}
array_name$={"string1", "string2", ...}
array_name[index] = value
array_name$[index]= "value"



- Each element of an array can also be assigned a value.
- Array elements are assigned by simply using the element index in square brackets along with the array name.

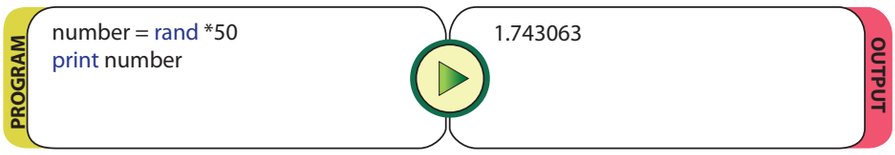


Tejas: Wow. This is good. We want to convert the game "Guess my number" into a program. In this game the computer chooses a number. The user has to keep guessing numbers, till the guess is correct.

Jyoti: Is there some way to make the computer choose a random number?

Moz: Yes. Check out the Functions section in the Basic-256 manual.

Jyoti: Yes, there is a function 'rand'. It is exactly what we want.

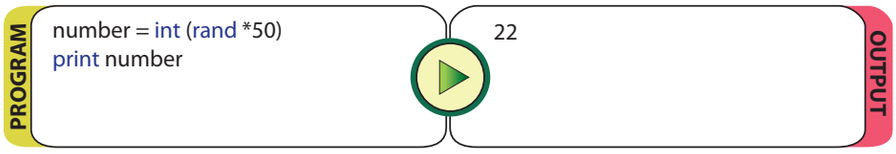


Memory	
Number	1.743063

Tejas: The function rand gives a decimal number. We want a whole number.
Moz: Since you want the user to guess a number from 1 to 50, multiply the number generated by rand with the last number in your range which is 50. Then convert the number you get to integer using the *int* function.
Jyoti: I have made an example using *int* to convert the decimal number to integer.

x = rand = .902
x = rand * 50 = .902 * 50 = 45.100
x = int(rand * 50) = int(.902 * 50) = int(45.100) = 45

Moz: Right. When you use max of the range you get numbers within the range. You can experiment and find out how this works with various numbers. Now go ahead and write your program.

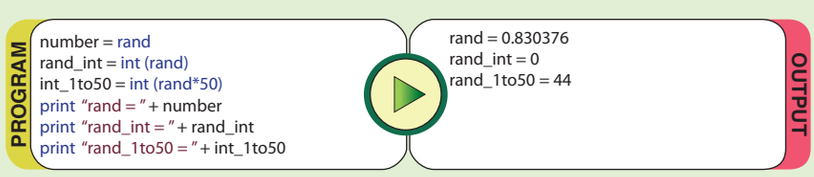


Info

Functions – Generating a random number

Syntax **rand**

- The function rand returns a random number.
- Rand can be used in an expression or assigned to a variable.
- The random number generated varies from zero to 1.
- rand can be used in an expression.



Tejas: I just can't wait to write the game. Let us start.
Moz: First write the main steps of the program. Then convert it into a BASIC program. Remember to write comments in the program, so that it is easy to understand for other readers.

1. *Declare and initialize array to display chance count.*
2. *Generate a random number between 1 and 50 store it in mynumber.*
3. *Ask the player to give the range for his/her guess.*
4. *Take the player's input.*
5. *Compare if mynumber is within the range and output accordingly.*
6. *Ask the player to now guess the number.*
7. *Player guesses number.*
8. *Compare if the guess is equal to mynumber and output.*
9. *Display smiley and a messages if it is equal.*
10. *Compare if the guess is greater than or less than mynumber and output.*
11. *Display appropriate messages.*
12. *After 5 chances display mynumber with appropriate messages.*

Note: First 3 guesses are for the range and next 3 are for the number.

5. Final program

Guess the number that computer thinks of:

Version 3

PROGRAM

```
#Guess my number
cls
clg
#Declare and initialize array to display chance
count
dim chance$(6)
#Initialize Y-coordinate, chance strings in
array, specify Font  for graphic display
Y= 5
font "Tahoma", 12, 50
chance$ = {"NIL", "First", "Second", "Third",
"Fourth", "Fifth"}
#Generate a random number between
1 and 50
mynumber = int(rand *50 + 1)
print "I think of a number between 1 and 50.
Guess my  number!"
print
print "Here are 3 chances where you get
some hint about  my number!"
For i=1 to 3
   #Display chance count in graphics output
   color blue
   Y = Y + 25
   text 0, Y, chance$[i] + " Chance "
   Print
   #Player gives the range in which
   he/she thinks the  number is
   Print "Player asks: Is Your number
   between"
   input "First number >", firstnumber
   input "Second number >", secondnumber
   #Compare and reply if mynumber is within
  the range
   if (mynumber >= firstnumber) and
   (mynumber <=  secondnumber) then
      Print "Computer replies: Yes"
   else
      Print "Computer replies: No"
   endif
   Y= Y + 25
Next i
#Player guesses number
for i = 1 to 3
   input "Computer: Guess my number  >",
   yourguess
   #Compare and display msg if the guess is
   not equal to mynumber
   if mynumber > yourguess then
      print "My number is greater than your
      guess."
   endif
   if mynumber < yourguess then
      print "My number is less than your
     guess."
   endif
   if mynumber = yourguess then
      print "You guessed my number with "
      + i +" chances.  Well done. "
   end
   endif
next i
#After 5 chances display mynumber
Print "My number is " + mynumber
font "Tahoma",20,75
text 5,125, "Better luck next time"
```

OUTPUT

```
I think of a number between 1 and 50.
Guess my number!
Here are 3 chances where you get
some hint about my  number!
Player asks: Is Your number between
      First number > 1
      Second number > 25
Computer replies: Yes

Player asks: Is Your number between
      First number > 2
      Second number > 12
Computer replies: No

Player asks: Is Your number between
      First number > 13
      Second number > 20
Computer replies: Yes

Computer: Guess my number >18
My number is less than your guess.

Computer: Guess my number > 15
My number is less than your guess.

Computer: Guess my number >13
You guessed my number with 3
chances. Well done.
```

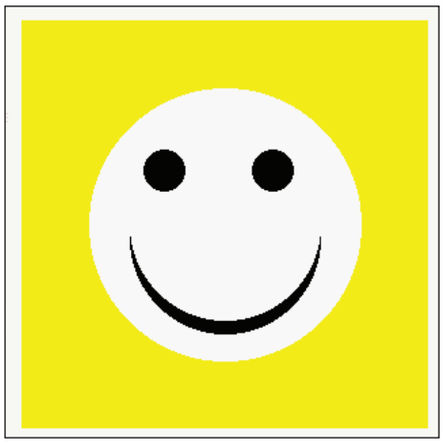
Memory

Y	5
Chance$ [1]	NIL
Chance$ [2]	First
Chance$ [3]	Second
Chance$ [4]	Third
Chance$ [5]	Fourth
Chance$ [6]	Fifth
mynumber	13
i	1
First number	1
Second number	25
Y	30
i	2
First number	2
Second number	12
Y	55
i	3
First number	13
Second number	20
Y	80
i	1
Your guess	18
i	2
Your guess	15
i	3
Your guess	13

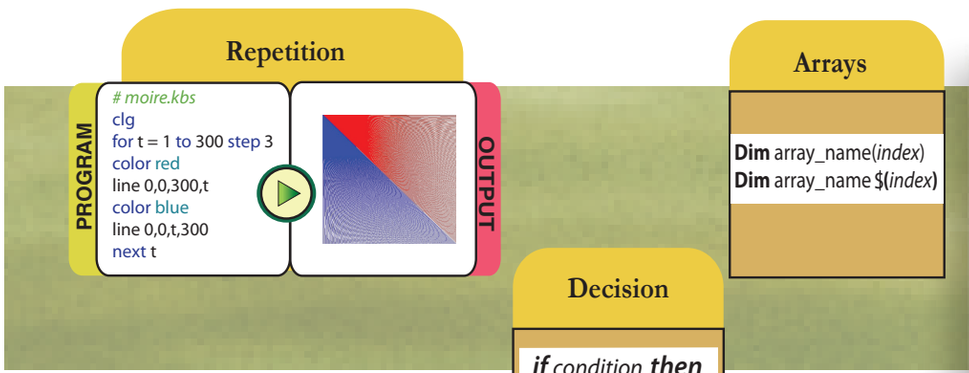
PROGRAM

```
#Reuse the graphic code from CM VI to
display smiley
clg
color yellow
rect 0,0,300,300
# draw the face
color white
circle 150,150,100
# draw the mouth
color black
circle 150,160,70
# A white circle is superimposed on the black
circle to draw the mouth
color white
circle 150,150,70
# put on the eyes
color black
circle 105,110,15
circle 185,110,15
#End of reuse code
```

Graphic output



OUTPUT



Learning Outcome

At the end of the lesson, you will be able to:

- Write syntax based programs to:
- Repeat a sequence of instructions, for a specified number of times.
- Control the flow of execution of a program based on the evaluation of a condition.
- Define arrays and use them in the program.
- Display images and text using graphic statements.

WORKSHEETS

1. What is the output of the program?

a.

```
PROGRAM
for t = 1 to 10 step 2
   p=3
   print p*t " , " ;
next t
```

i. 39152127
ii. 3, 9, 15, 21, 27
iii. Multiplication table of 3
iv. Multiplication table of 2

b.

```
PROGRAM
Sum=245
If Sum>245 then
   Print "You reached level 3"
else
    Print "Still to go"
End if
```

i. You reached level 3
ii. Still to go
iii. 245
iv. none of the above

c.

```
PROGRAM
Dim Workingdays$(4)
Workingdays$={"Monday","Tuesday", "Wednesday",
"Thursday", "Friday"}
Print Workingdays$[2]
```

i. Monday ii. Tuesday iii. Wednesday iv. Thursday

d.

```
PROGRAM
Dim a(3)
a[0]= 89
a[1] = 23
a[2] = a[0] + a[1]
For i = 1 to 2
   Print a[i];
next i
```

i. 89
ii. 23
iii. 89
23
112
iv. 23
112

e.

```
PROGRAM
for t = 1 to 10
   for p=1 to 10
      print p*t
   next p
next t
```

i. Squares of numbers from 1 to 10
ii. Multiplication tables of all numbers from 1 to 10
iii. Squareroots of numbers from 1 to 10
iv. None of the above

Memory

t	p	Print
1	1	1
1	5	5
1	10	10
2	1	2
2	5	10
2	10	20
10	1	10
10	5	50
10	10	100



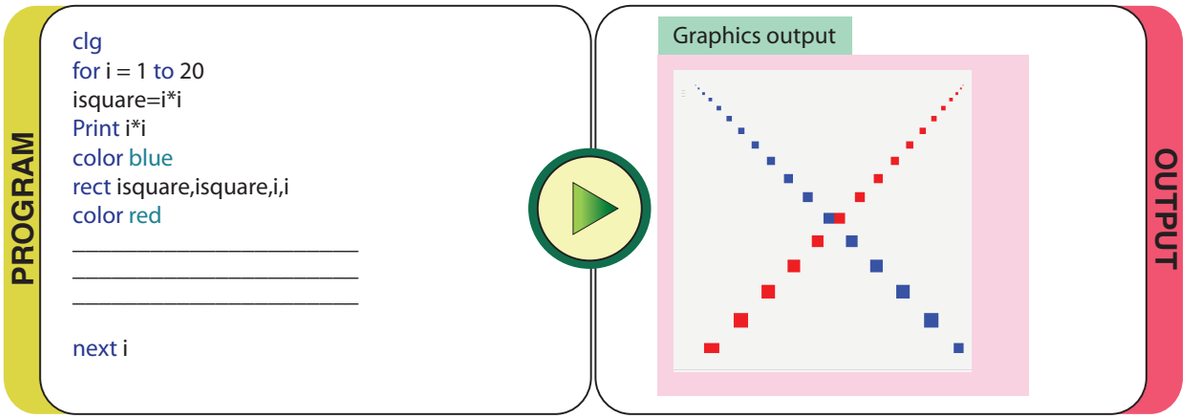
2. Here is a program written in Basic-256. Insert the necessary comments clearly stating the function of each code segment.

```
#_____________________________________
Dim Answer$(5)
Dim Display(5)
Answer$ = {"First", "Second", "Third", "Fourth", "Fifth"}

# _____________________________________
For i=0 to 4
Input Answer$[i] + " Number: ", answer
Display[i] = answer
Next i

# _____________________________________
For t=0 to 4
Print Display[t]
Next t
```

3. Insert the rect statement in the following program that would give the output shown in red in the graphics output area.





4. a. **Here is a program to find the number of people who own a car in a building. The number of residents in the building is 6. Go through the program and see whether the sequence is correct. If there is a mistake, correct it and verify your answer by running it in Basic-256.**

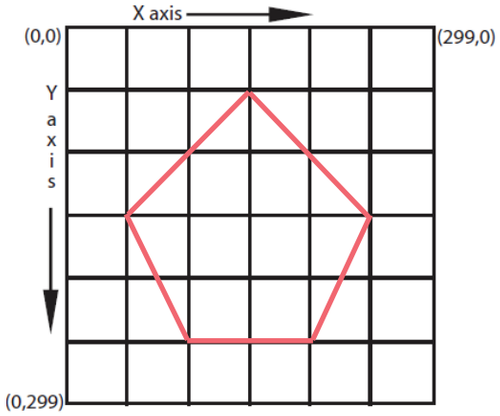
```
For i=0 to 5
    counter=0
    Print "Do you own a car? (answer with yes or no) "
    Input answer$
    If answer$="yes" then
       counter=counter+1
    end if
Next i
print "Number of residents with a car:" + counter
```

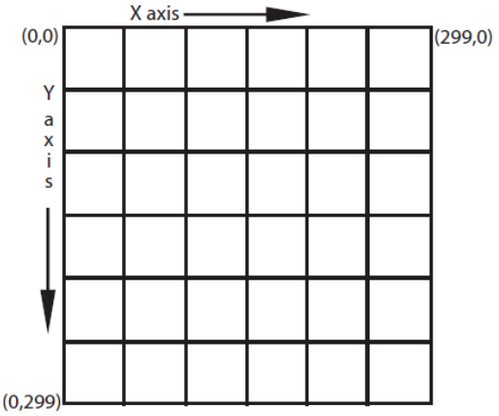
b. Now insert code into your above program to record the answers of each residents in the building.

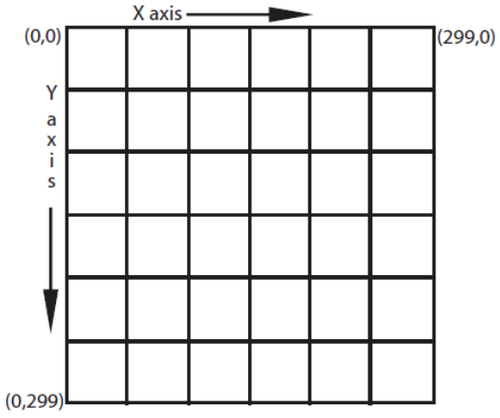
Hint: Use an array to store the answers of the residents.

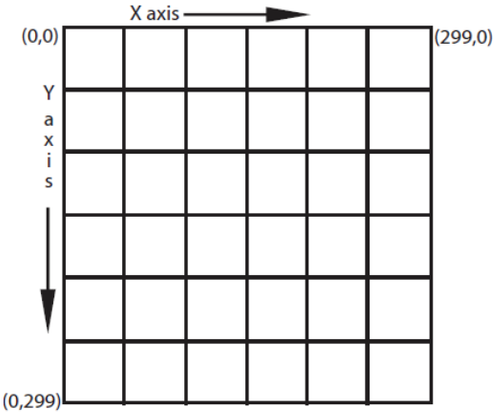
5. a. **Use the following graph sheet to draw the following shapes, as though a computer is drawing pixels.**
 - pentagon
 - right triangle
 - star
 - Hexagon

 For example:









 b. **Write a program in Basic-256 to draw any one of the above shapes using the line statement.**

PROGRAM



1. **Here is a program which uses 'For' loop. Check what is the output you will get when you introduce 'Step' while incrementing the value of i.**

```
cls
clg
For i= 1 to 20
    isquare=i*i
    print i +" and "+ isquare
    rect isquare,isquare,i,i
next i
```

Check the output when the steps are 2.5 and 10.



1. **Suppose your class has 45 students. Write a program to find the number of students present today and what is the number of students absent?**

Hint: Use For loop, If then else and counters to complete the program.



1. Beautify option under edit sub menu in BASIC-256.
2. Control statements Do...Until, While...end while.
3. Custom graphics.
4. Sound and music.

Teacher's Corner

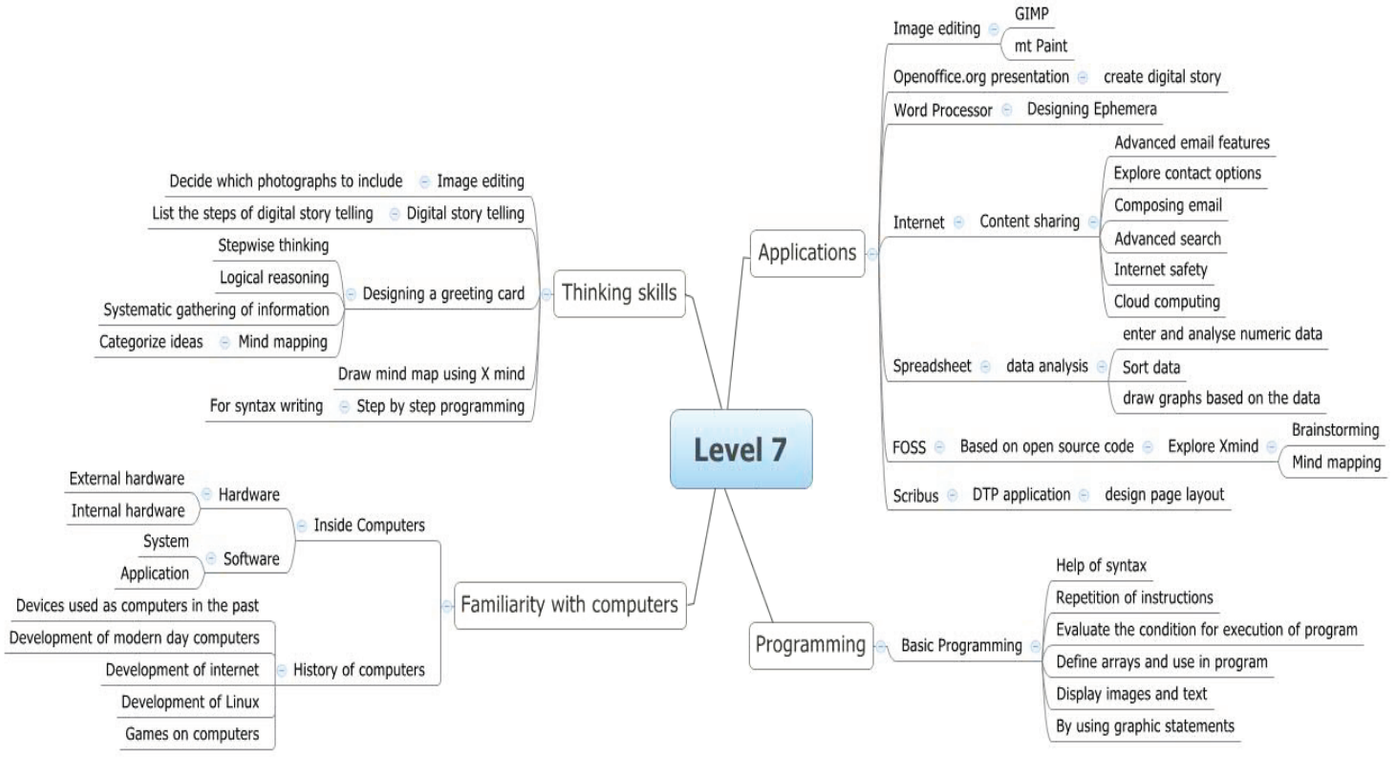
Level VII

Lesson 10

- The objective of this lesson is to teach students advanced programming in Basic. Students already have elementary knowledge of this programming language. Begin with revision of concepts learnt earlier. You can give them a simple project to help refresh their memory. Summarize the meaning of key terms such as variable.
- Start the discussion with any day to day event which gets repeated. For example, while skipping or swimming the rope and laps are repeated in a sequence after regular time intervals. Use this analogy to introduce the concept of loops. Students already know about loops in the context of Scratch programming. Run a Scratch program that involves loops to refresh their memory about it.
- Use this opportunity to explain how loops occur in programming code. You can begin with description on 'For' loop. The program to calculate the squares of numbers from 1 to 20 (first program in the lesson) can be used to explain this. Let them try the program on a computer and test it themselves. You can ask students to answer worksheet question 3.
- Students already know about flowchart. You can ask them to create a flowchart for computing profit/loss. Now, use this example to introduce the control command 'If then else'. Draw attention to the decision making box where conditional statements are evaluated. Explain how these blocks are executed using the command 'If then else'. Write and run this program to calculate the profit or loss.
- Use the examples included in the lesson to demonstrate use of the two commands -'For', 'If then else'.
- Array is another important concept in programming. Explain when we want to store more than one value or strings, arrays are used. Allow students to get familiar with the syntax for using arrays. Demonstrate how arrays can be used to store strings and numbers. Emphasize on counting of array elements start from zero and the need for proper comments in the program. Question 2 in the worksheet helps to reinforce this.
- Explain that there are some functions which can be used instead of writing programs for them. Example is 'Rand' that generates a random number and 'int' which converts a decimal number to integer.
- There are many graphic commands in Basic-256. Show them how images can be displayed on the graphic output using 'imgload', and text displayed using 'text' commands. Ask them to explore more commands on their own.Question 3 can be given as homework.
- Question 4 a and b, cover most of the commands taught in this lesson. Give time in lab session to do this.
- Summarise the lesson by revising the various commands taught in the lesson.

Further Reading:
http://basic256.org/index_en
http://www.basicbook.org/
http://code.google.com/p/simple/(Simple is a BASIC dialect for developing Android applications).

Computer Masti Level 7





Correct posture

Posture to be maintained while using the computer:

1. Your entire body should face the monitor and keyboard.
2. The screen should be 18 to 24 inches from your eyes. Its position and angle should not cause any glare.
3. Keep your shoulders and neck relaxed.
4. Keep your back straight, and make sure you have lower back support.
5. Keep your wrists straight while you are typing. Do not bend.
6. Keep your fingers relaxed while typing or using a mouse.
7. Keep your thighs parallel to the floor.
8. Keep your feet flat on the floor. If your feet cannot reach the floor use a foot rest.
9. There should be enough room between the desk and the legs.
10. Use your whole arm, and not just your wrist when moving the mouse.

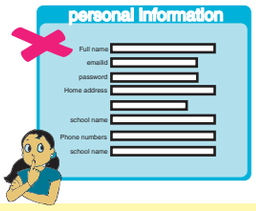
Incorrect posture

ComputerMasti
www.computermasti.com | www.inopen.in

Notes:

Internet Safety Rules

S



Keep *Safe*
Keep safe by not revealing personal information while using Internet. Personal information includes email Id, house address, photos, phone number and password.

M



Do not *Meet up*
Meet online friends only in the presence of an adult family member.

A



Do not *Accept*
Accept e-mails and messages only from people whom you know. Be aware of viruses and spam messages.

R



Check for *Reliability*
All the information on the Internet may not be correct. Check the reliability of the information with other resources - books, websites or someone who knows.

T



Tell
Tell your teachers/adult family member if you or someone you know is uncomfortable about an online communication.

Adapted from: www.kidsmart.org.uk

ComputerMasti



TM

ComputerMasti

First Edition: 2011
Reprint: 2012

License Terms for ComputerMasti™ Books & Derivatives

SOME RIGHTS RESERVED

The agreement is published under the CC *Plus* (Creative License)

Attribution-Non Commercial-Share Alike

THE WORK HEREIN IS REFERRED TO OUR PRODUCT ComputerMasti™ IN TANGIBLE OR INTANGIBLE FORM (AS DEFINED BELOW) IS PROVIDED UNDER THE TERMS OF THIS CREATIVE COMMONS LICENSE ("CCPL" OR "LICENSE"). THE WORK IS PROTECTED BY COPYRIGHT AND/OR OTHER APPLICABLE LAW IN THE INDIAN JURISDICTION. ANY USE OF THE WORK OTHER THAN AS AUTHORIZED UNDER THIS LICENSE OR COPYRIGHT LAW IS PROHIBITED AND IS PUNISHABLE UNDER LAW.

BY EXCERCISING ANY RIGHTS TO THE WORK PROVIDED HERE, YOU ACCEPT AND AGREE TO BE BOUND BY THE TERMS OF THIS LICENSE. TO THE EXTENT THIS LICENSE MAY BE CONSIDERED TO BE A CONTRACT, THE LICENSOR GRANTS YOU THE RIGHTS CONTAINED HERE IN CONSIDERATION OF YOUR ACCEPTANCE OF SUCH TERMS AND CONDITIONS.

1. **The exclusive commercial rights to this Licensee lies with InOpen™ Technologies Pvt. Ltd**, hereunder are not subject to a pre-existing Creative Commons license which grants members of the common public nonexclusive and non-commercial right to create their own adaptations or derivatives of the said Licensed Property. Such Creative Commons-licensed works should not be sold or distributed for profit. Licensor agrees not to license the rights which are granted to Licensee hereunder to any competitor of Licensee or to any commercial enterprise intending to create adaptations of the works for commercial distribution.

2. **Restrictions**. The license granted in terms of "attribution" and "share alike" is expressly made subject to and *limited by the following common guidelines:*

a. **You may distribute or publicly perform the work only under the terms of the original License i.e. cc by-nc-sa**. You must include a copy of or at least the Uniform Resource Identifier (URI) for, this License with every copy of the work you distribute or publicly perform. You may not offer or impose any terms on the work that restrict their terms of this license or the ability of the recipient of the work to exercise the rights granted to that recipient under the terms of the license. You may not sublicense the work. You must keep intact all notices that refer to this license and to the disclaimer of warranties with every copy of work that you distribute or publicly perform.

b. If You **Distribute**, or **Publicly Perform the Work** or any **Adaptations or Derivatives**, you must, unless a request has been made pursuant to InOpen™ Technologies with reference to section 2(a), keep intact all copyright notices for the work and provide, reasonable to the medium or means you are utilizing: (i) the name of the original author (or pseudonym, if applicable) if supplied, and/or if the original author and/or licensor designate another party or parties (e.g., a sponsor institute, publishing entity, journal) for attribution ("Attribution Parties") in licensor's copyright notice, terms of service or by other reasonable means, the name of such party or parties; (ii) the title of the work if supplied; (iii) to the extent reasonably practicable, the URI, if any, that licensor specifies to be associated with the work, unless such URI does not refer to the copyright notice or licensing information for the Work; and, (iv) consistent in the case of an adaptation, a credit identifying the use of the work in the adaptation (e.g., "Odiya translation of the work by original author," or "Screenplay based on original work by original author"). The credit required may be implemented in any reasonable manner; provided, however, that in the case of an adaptation or collection, at a minimum such credit will appear, if a credit for all contributing authors of the adaptation or collection appears, then as part of these credits and in a manner at least as prominent as the credits for the other contributing authors. For the avoidance of doubt, you may only use the credit required by this section for the purpose of attribution in the manner set out above and, by exercising your rights under this license, you may not implicitly or explicitly assert or imply any connection with, sponsorship or endorsement by or without the consent of the original author, licensor and/or attribution parties, as appropriate, of you or your use of the work, without the separate, express prior written permission of the original author, licensor and/or attribution parties.

For any further clarifications or a better understanding of this license, please email us at legal@inopen.in or visit our web page www.computermasti.com/legal . CREATIVE COMMONS INDIA ENCOURAGES THE USE OF *CC Plus* LICENSE FOR COMMERCIAL PURPOSE. We hereby support the above License.

Sridhar Iyer

Shishir Kumar Jha

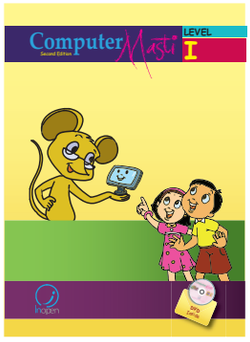
Prof. Sridhar Iyer
Licensor and Editor, Computer Masti™
Dept. of CSE, IIT Bombay

Prof. Shishir Jha
Project Lead–Creative Commons, India
SJSOM, IIT Bombay

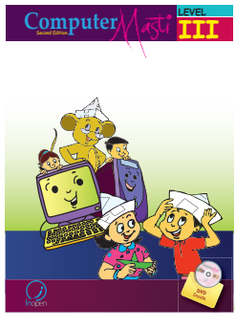
* *Creative Commons is working with India jurisdiction-specific licenses from the generic Creative Commons licenses.*

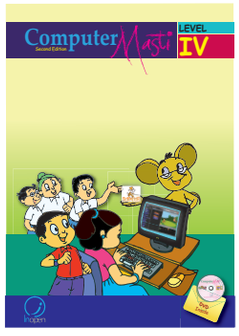
©ComputerMasti in the form of logo as well as text is proprietary trademark of Dr. Sridhar Iyer
© Moz, Tejas & Jyoti in the form of image as well as text is proprietary trademark of Dr. Sridhar Iyer
©InOpen in the form of logo as well as text is proprietary trademark of InOpen Technologies Pvt. Ltd.

Other books in Computer Masti series







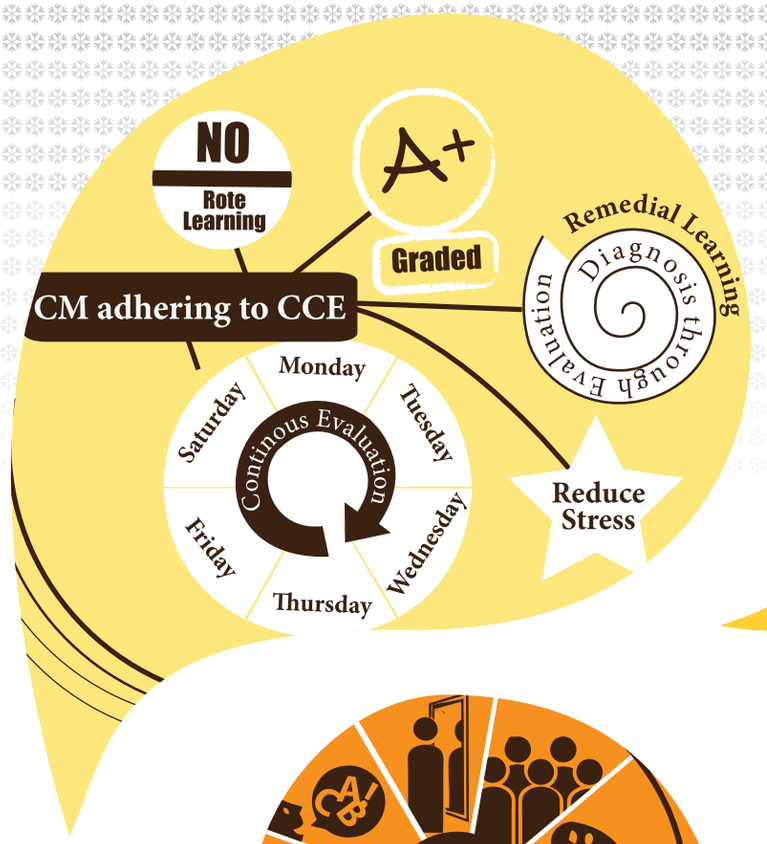


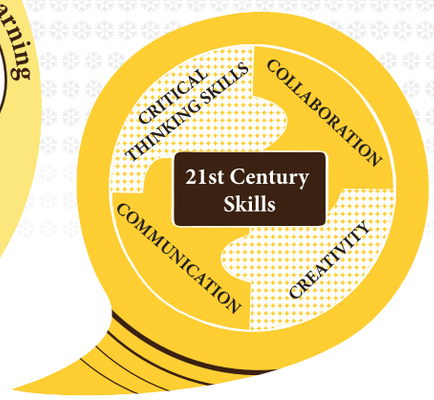




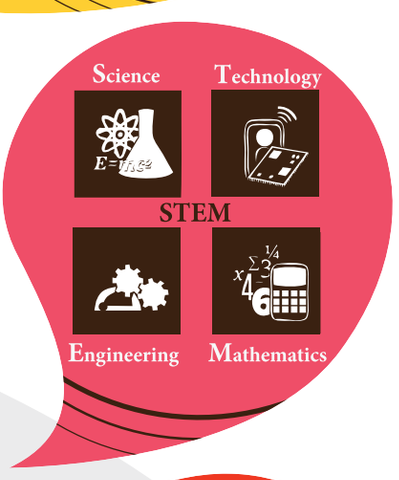


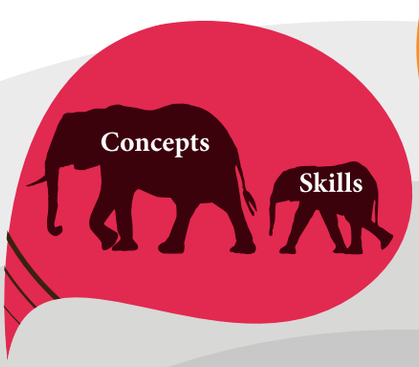
The CD contains the Computer Masti Toolkit (for Windows Operating System) for the applications used in the book. Please write to us at info@computermasti.com for further information on Computer Masti.









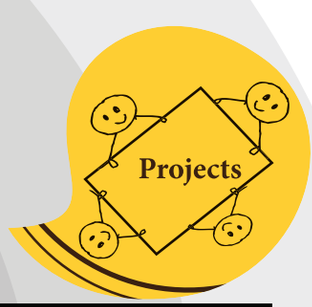




Computer Masti is a content-service solution to teach computer science in schools. It consists of an extensively research based curriculum and instruction material for teaching computers.

- Fun is an important element of learning in Computer Masti.
- Graphic organisers (mind maps) are included as tools for ideation and representation.
- CM prepares students towards STEM literacy with focus on technology.
- Worksheets, activities and projects are in line with continuous and comprehensive evaluation (CCE) guidelines and captures higher order thinking skills (HOTS)
- CM illustrations challenge gender stereotypes thus sensitising the students and teachers.
- In addition to English, available in 8 Indian languages and 2 Foreign languages.

अ ಬ অ અ అ অ অ ಅ ت A



ComputerMasti

978-93-80785-11-0

InOpen
adding simplicity to sense
InOpen
SINE, IIT Bombay

www.inopen.in

InOpen Technologies Pvt. Ltd, M-03, 3rd Floor CSRE, IIT Bombay, Powai, Mumbai - 400076. Email: info@inopen.in, Ph: +91 22 2572 5596

www.computermasti.com